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ABSTRACT

This is the final report of a project initiated in September 1965 to: (1) determine and measure the environmental factors and the social-psychological characteristics of students which are related to the success or failure of occupational programs; and (2) to identify a variety of typical educational career patterns and to isolate teams of predictor variables (environmental, community, personal, and socioeconomic) by which educational career patterns may be significantly differentiated. A battery of tests, inventories and rating scales was administered to 10,857 students in 24 colleges; 9,610 students (89 percent) submitted complete and scorable records. The student data profile was generated through administration of the Junior College Student Inventory and a 15-scale inventory of preferred conditions and rewards of work (Work Values Inventory). Data on environmental influences was gained from a set of four Junior College Environment Scales, a pair of Faculty Preference Scales, and a series of 13 Community Characteristics Indices. A variety of statistical treatments was applied to study variable interactions and their relationships to student program choice, educational career patterns, program completion, and postcollege employment status. Results are described and pertinent literature is reviewed. Sections of the survey instruments are appended. (Author/DC)

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Final Report

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Environmental Differentials of Occupational Programs and Educational Career Patterns in Public Junior Colleges

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University of Minnesota
Minneapolis, Minnesota

November, 1974

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Henry Borow
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Principal Investigators

October 30, 1974

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CHAPTER 1

Introduction and Overview of the Study

The two-year collegiate institution, initially called the junior college and for many years thereafter known by that name, has American origins which date from the latter part of the nineteenth century. The earliest known junior colleges, such as Lewis Institute in Chicago, founded in 1896, were private schools designed expressly to provide an educational bridge between the secondary schools and the baccalaureate colleges and universities. William Rainey Harper, President of the University of Chicago, is generally recognized as having been instrumental in initiating the public junior college movement at the turn of the twentieth century. (Gleazer, 1968)* On encouragement by President Harper, local school authorities in Joliet, Illinois established Joliet College in 1901. It is believed to have been either the first public junior college in the nation or among the very earliest institutions of its kind. Through such colleges, Harper hoped that smaller four-year colleges which were not on solid footing might strengthen themselves by conversion to two-year post-secondary feeder schools but, more particularly, that the University of Chicago would benefit through the creation of a new source of qualified students who could be admitted directly into the third year at the University.

The idea of the two-year institution took hold quickly. By the time the American Association of Junior Colleges was founded in 1920 approximately 200 junior colleges were in operation. As Gleazer (1968) points out, "Above all, education was seen as the route to individual achievement, the 'open sesame' to economic and social advancement, the way to get ahead." The rapid growth of junior colleges may be viewed as evidence of a strong assumption about their potential power to further the ideals of education and to open socioeconomic opportunity to larger numbers of young adults. Following World War II, numerous two-year collegiate institutions sprang up around the country. By 1967, the United States counted 900 junior and community colleges having a combined student enrollment of over one-and-two-thirds millions. In the period of greatest acceleration, 1966-1969, about 50 to 75 new junior and community colleges came into existence annually. By 1972, an estimated 800 public and 250 private two-year institutions were operating in the United States. (Borow, 1974)

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*For this publication and related references dealing with the background of the junior-community college movement and with community and other environmental influences on program choice, persistence in college, and achievement, see References on Environmental Press, beginning on p. 298.

It is a matter of some significance that, during the years of worrisome decline in the nation's college student population (i.e., the late 1960's and early 1970's), the two-year colleges, and especially the public community colleges, stood as the only type of post-secondary educational establishment, with the exception of the new area vocational-technical institutes, to show enrollment gains.

Trends in the Nature of Two-Year Colleges

Since the inception of the junior college movement, and increasingly since about 1950, a number of significant changes relative to the funding base, administrative organization, ordering of educational priorities, and composition of student clientele have characterized the growth of two-year collegiate institutions. Clearly discernible among such major trends are the following:

(1) Shift from feeder-type programs (preparation of transfer-bound students) to dual systems offering both transfer and occupational programs.

(2) Shift from a comparatively large proportion of private colleges to a preponderance of publicly supported institutions.

(3) Broadening of the jurisdictional base of two-year public institutions from that of the local school district to a network of colleges, usually under the governance of a state junior-community college board or state board of higher education.

(4) Movement toward closer linkage of institutional programs and services to community needs. This trend is seen in the design of new career training curricula keyed to the developing local economy, the establishment of community-based field experiences and internships, and the provision of more evening classes and off-campus services. Because public two-year collegiate institutions are now increasingly assuming such community-wide responsibilities, they are usually called "community colleges," and the principal national association with which such schools are affiliated has recently broadened its name to American Association of Community and Junior Colleges.

(5) Extension of the "open door" or opportunity climate with a resultant diversification of the student population. Public junior-community colleges currently enroll growing numbers of previously bypassed subpopulations -- older working students, "second careerist," married women with growing or grown children, retirees, blacks, Indians, Chicanos, and clients of public rehabilitation agencies.

(6) Expansion of counseling and guidance activities with special emphasis on part-time (for in-school students) and full-time (for occupational program graduates) job placement services.

Institutional Research and Accountability

The aforementioned modifications in the form and functions of two-year colleges have brought a new urgency to the task of educational assessment. The conventional junior college of the past was often content to measure its effectiveness in terms of the percentages of its students who moved on to baccalaureate schools. This transfer criterion hardly suffices to judge the merit of the contemporary public community collge. The presence of significant proportions of academically high-risk enrollees who require a complex range of both individually-based and experientially-based learning activities, the uncertainties of emerging paraprofessional training programs which lack dependable curriculum models from the past, and the insistent demands from legislatures and state governing boards for convincing demonstrations of cost effectiveness all pose difficult challenges. Unfortunately, the two-year colleges have until now lacked a strong tradition of empirical research on student characteristics, curriculum design, and educational outcomes. The great majority of their published statements have dwelt mainly upon aims and programs descriptions.

Whether owing to the changing character of two-year institutions, to the prevailing nationwide emphasis on accountability in education, or to other causes, a vigorous movement directed at research on the clientele and educational products of the junior-community college now seems under way. The tenor of the new empiricism is prominently reflected in Bushnell's (1973) detailed report on Project Focus (see annotation in Supplementary References, p. 291) and in the series of research studies conducted by the Research and Development Division of the American College Testing Program (Richards and others; see annotation in Supplementary References, p. 297). In the past few years an impressive number of paper-reading programs and symposia on research and evaluation in the junior-community colleges have been presented at the annual conventions of the American Educational Research Association, American Psychological Association, American Personnel and Guidance Association, and the American Association for Higher Education. The Educational Resources Information Center (ERIC) network maintains a clearinghouse for research-related reports on the junior-community college field at the University of California at Los Angeles.

Research pertinent to the college motives, career aspirations, and educational career patterns of junior-community college students is reviewed in Chapter Two of this report. Findings on the relationship between community and campus environment variables and the attitudes and achievements of students have been reported in studies by Stern and others (1956), Stern (1960), Thistlethwaite (1959, 1960), and Pace (1962, 1963, 1964)** Pace's 1964 study, undertaken as a U.S. Office of Education-funded Cooperative Research Project, found that environments were significantly related to the criterion measures of judged attainment of objectives, grades, and satisfaction with college. The environmental press was classified according to source (administration, academic, and student) and by "total" press versus "local" press; e.g., the "total" press of the university versus the "local" press that characterizes the environment of physics majors.) In general, the total environmental press appeared to be related more strongly to the criterion

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**See special set of References on Environmental Press, pp. 298-299.

measures than did the local press. Also, the overall press, irrespective of source (administrative, academic, and student), produced stronger relationships than that found for the individual sources. Pace's research supported the earlier findings of Stern and Thistlethwaite.

Studies by the co-principal investigator of the present study (Hendrix, 1964a, 1964b, 1965a, 1965b) reported relationships between academic personnel policies, faculty personality characteristics, faculty life-record data, and student perceptions of their junior college environments. Research Project 5-0770, OE-6-10-262 (Hendrix, 1967) was the source of the environmental press variables and the sampling data employed in the present study. For example, the sample of 24 colleges used in this investigation was selected (by methods described in Chapter 3) from the original set of 100 colleges used in CRP 2849.

Objectives and General Design of the Study

The stated purposes of most contemporary public junior colleges include the provision of occupational (vocational-technical) education. This is especially true of the comprehensive community junior colleges. In many such institutions, however, the occupational programs offered are not able to fulfill stated objectives. In some cases, such programs are offered but not adequately supported by the college or by the community. In others, the programs may be well supported but do not attract students to them in sufficient numbers. In many colleges, substantial numbers of students do enroll in occupational programs but fail to complete them successfully. In still others, many students who complete occupational programs fail to enter employment in the fields for which they were trained. The present research project was designed in an attempt to shed some light on the foregoing problems. The general objectives of the study were:

(1) to define and measure factors related to success or failure of occupational programs in public junior colleges. Environmental determinants and their interaction with social-psychological characteristics of students were examined for this purpose.

(2) to identify a variety of typical educational career patterns within two-year colleges and, through multiple discriminant analysis, to isolate teams of predictor variables (environmental, community, socioeconomic, and personal trait variables) by which such educational career patterns may be significantly differentiated.

The original sample of 100 two-year colleges, from which the set of 24 institutions used in the present investigation was drawn, was selected as representative of American public junior colleges on seven criteria. These include enrollment size, geographic location, ratio of part-time-to-full-time students, curriculum (occupational programs only, transfer programs only, or both), source of accreditation (regional or state only), availability or nonavailability of evening programs, and availability or nonavailability of boarding facilities. Because a major concern of the present study dealt with the effectiveness of occupational programs; i.e., percentages of occupational programs students who successfully completed their programs, the 24 colleges selected for analysis were chosen chiefly on the criterion of "occupational achievement." For purposes of this investigation, "occupational achievement" was defined as the number of students completing occupational programs at a college, this number expressed as a percentage of all those enrolled in occupational programs at that college. The sampling procedure by which the 24 colleges to be studied were selected and distributed on the occupational achievement criterion is described in Chapter 3.

In conformity with the two general aims of the study as noted earlier in this chapter, two principal data analysis approaches were made to the identification of variables contributing to successful achievement in junior-community college programs. First, the predictive power of a series of background variables (environmental influences and personal trait variables) was studied with reference to what were termed "intermediate criteria," ten dependent variables for which data were available on freshman subjects within approximately their first month of college experience. These were measures which, in turn, could themselves be regarded as predictor variables and, thus, could be combined with the other predictors to forecast selected outcomes of the two-year college experience; e.g., differential educational career patterns, occupational program completion, and post-college employment status. Secondly, the full complement of predictors, totaling 49 variables, were analyzed with respect to both their combined and independent discriminating power in accounting for the above-mentioned college outcomes.

In the Part I analysis (for which the procedures and findings are reported in Chapter 5), the predictors consisted of the four scores on the Junior College Environment Scales, two Student Preference Scales, two Faculty Preference Scales, 13 Indices of Community Characteristics, 15 Work Values Inventory scales, scores on three subtests of the General Aptitude Test Battery, and two socioeconomic measures (parent's occupational level and parent's educational level). The raw data for most of these measures were derived from the Junior College Student Inventory, described in detail in Chapter 4 and reproduced verbatim in Appendix A. The ten intermediate criteria to be predicted by the foregoing variables were derived from Junior College Student Inventory items on which subjects reported their (a) estimates of their academic self-confidence (Likelihood of Success in College), the degree to which they believed they were already attaining several standard educational goals (Judged Achievement), and Satisfaction with College; (b) perceptions of pressure from friends, faculty, and parents to switch to or from transfer programs and occupational programs (Change Press), and (c) ratings of the perceived prestige of their own curricular programs in relation to other two-year occupational programs known to vary widely in assigned prestige (Six Prestige Differentials). Again, a fuller description of these variables may be found in Chapter 4.

Since the influence of environmental variables on student status and perceptions (Intermediate Criteria) was the main concern of the Part I treatment, the four Junior College Environment Scales were taken as the primary predictor variables in this phase of the study. A multiple regression analysis was performed in which these scales were studied in relation to the ten intermediate criterion variables enumerated above. Zero-order correlations were computed between each of the four Junior College Environment Scales and the ten intermediate criteria. Multiple regression coefficients and multiple correlations were also calculated to reveal the combined contribution of the four college environment scales to the variance on each criterion. Next, a more comprehensive series of regression analyses were carried out, in each of which the relationship of one of the Junior College Environment Scales, combined in a battery with all other predictors, was examined with reference to each of the ten criteria. Subsequently, a limited number of hypotheses were tested by placing restrictions on the full regression model. In these procedures the multiple correlations for the full model were contrasted with those of the restricted model, and the reduction in magnitude of each R^2 (from full to restricted model) was then tested for statistical significance by means of an F-distribution.

A number of subsidiary hypotheses were next tested. The contribution of the two Student Preference Scales (S1 - Intellectual/Scholarly Environment, S2 - Sociability), as a paired set of predictors, was examined with respect to their combined relation to four intermediate criteria (Liking for College, Judged Achievement, Satisfaction with College, and Change Press). An identical treatment was applied to the study of the predictive power of the same set of variables against the six Prestige Differentials. The remaining hypotheses involved tests of the contributions of the 15 Work Values Inventory scales as a set, the 13 Indices of Community Characteristics as a set, the two Faculty Preference Scales as a set, the three General Aptitude Test Battery subtests as a set, and the two indicators of socioeconomic status (parent's/guardian's occupational and educational levels) as a set. Tables 31 - 34 (Chapter 5) present the findings derived by testing the foregoing series of subsidiary hypotheses.

In the Part II analysis (for which several types of treatments and findings are reported in Chapter 6), the individual and multiple discriminating power of the predictors was studied with reference to a number of college outcome criteria. The two broad classes of criterion variables employed were (a) 2-year educational career patterns, and (b) post-college employment status.

Forty-nine variables were studied in the Part II treatment. Included in this predictor set were the ten variables which had been employed in Part I as intermediate criteria (Likelihood of Success in College*, Judged Achievement, Satisfaction with College, Academic

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*In the Part II treatment, the Likelihood of Success measure was subdivided into two predictor variables, Likelihood of Success in 2-year programs and Likelihood of Success in B.A. degree programs.

Change Press, and the six Prestige Differentials). The remaining predictors included a single, combined socioeconomic status index (family educational and occupational levels), the two Student Preference Scales, the two Faculty Preference Scales, a single General Aptitude Test Battery score (N = Arithmetic Reasoning), the 15 Work Values Inventory scales, the four Junior College Environment Scales, and the 13 Community College Indices. In order to provide a better picture of the measurement properties of the full set of predictors, descriptive statistics were applied to obtain means, standard deviations, and a 49x49 intercorrelation matrix.

To what extent can groups of 2-year college students who exhibit varying educational career patterns be differentiated from one another by teams of predictors? For example, is there an identifiable combination of predictor variables which distinguish those students who initially enter occupational programs and successfully complete them (after two years) from those who enter such programs but fail to complete them, or from those who enter such programs but subsequently complete transfer programs? To find answers to this general question, the investigators applied a stepwise method of multiple discriminant analysis* to ten selected sets of 2-year educational career patterns. The first set involved a discriminant analysis of five educational career patterns, each of these patterns consisting of students all of whom had initially enrolled in occupational programs; each pattern in the set, however, was characterized by a different final curriculum status. The ten sets of educational career patterns, each set subjected to the multiple discriminant analysis procedure, may be identified by the following generic descriptors:

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*See W.J. Dixon (Ed.) under Supplementary References.

(1) Groups initially enrolled in occupational programs

(2) Groups initially enrolled in transfer programs

(3) Groups initially undecided about curricular programs

(4) Groups initially enrolled in occupational or transfer programs

(5) Groups enrolled in occupational programs during last term in college

(6) Groups enrolled in transfer programs during last term in college

(7) Groups whose educational career patterns differ in aspiration level

(8) Groups exhibiting different linkages between initial college program status and post-college employment status

(9) Groups exhibiting different linkages between final college program status and post-college employment status.

(10) Groups differing in success with college program (degree completion versus noncompletion)

For each of the multiple discriminant analyses, a summary of tabled results was prepared to show the stepwise sequence in which predictors differentiated (in descending order of power) between the several educational career patterns within the set; i.e., the descending order (by F-values) in which the predictor variables accounted for the correct categorical placement of students within the several educational career patterns.

The study investigated next the power of the 49 predictors, taken separately, to discriminate between selected pairs of 2-year educational career patterns. To carry out this phase of the project, the investigators employed an algebraic modification of the Scheffé procedure to yield an F-ratio equivalent of the Scheffé (1959) confidence interval It was possible by this procedure to study the performance of any predictor variable; e.g., Satisfaction with College, in discriminating between any two educational career pattern groups; e.g., those students initially entering and later completing occupational programs versus those students initially entering and later completing transfer programs. The Scheffé-type test described here was used to study post hoc means contrasts between 33 pairs of educational career patterns by means of all 49 predictors.

Finally, the Chi-square test was applied to each of the ten selected sets of 2-year educational career patterns previously described. This procedure afforded another way of testing the "hit rates" of the predictor batteries; i.e., the power of the predictors to categorize students by their correct 2-year educational career patterns. At the same time, the procedure permitted a verification of the results obtained by means of the stepwise multiple discriminant analysis technique previously described.

Organization of the Report

The next section of the report (Chapter 2) presents a review of the published literature on the demographic and behavioral characteristics, college-related decisions, aspirations, work values, career patterns, and followup status of junior-community college students in public institutions. Chapter 3 describes the sampling procedures used in selecting the 24 public junior colleges whose students served as subjects in this study. A description of the predictor instruments and the intermediate and terminal criterion measures are given in Chapter 4. That chapter contains details of the construction and logic of the Junior College Student Inventory and the operational definitions, including scoring rules, of the items and sections of the JCSI which were used as project variables. Chapters 5 and 6, respectively, present detailed findings, with tables, on the relationships between prediction measures and the intermediate and final criteria. The summary section of the report, Chapter 7, sets out some major conclusions and implications of the study. Facsimile copies of the JCSI, Work Values Inventory, and several of the forms used in collecting project data appear in the Appendixes.

CHAPTER 2

Career Behavior of Junior College Students: A Review of Research

This review of the published research literature on the vocationally relevant characteristics and performance of junior college students examines three broad areas of concern:

1. *Description of the entering junior college student*

Who are the entering junior college students? What are their backgrounds, psychological makeups, socio-economic statuses, scholastic abilities, and aspirations? How do they differ from four-year college students and non-college youths? What influences their decisions to attend junior college and their choices of curriculum? What are their work values?

2. *Junior college career patterns*

What are the curriculum choices and college career histories of junior college students? How long do they remain in school? In what proportions do they transfer, complete their program, or drop out? Do they maintain their original curriculum plans? What environmental and personal trait variables are predictive of the several discriminable occupational curriculum patterns exhibited by junior college students?

3. *Immediate post-college outcomes of junior college*

What happens to students after dropping out or graduating from junior college? Are such outcomes predictable from knowledge of their junior college career patterns? What environmental and personal trait variables are predictive of such outcomes?

D'Amico and Merterana (1962) surveyed a decade of research and information reports on the two-year college. In an attempt to define those issues receiving most attention, they reviewed all articles in the two-year college field in periodicals as reported in *Education Index* between 1950-1960. Over 600 titles were located. D'Amico and Merterana concluded that studies on institutional problems and students in the two-year college have been relatively few in comparison with efforts in other directions. Moreover, most of the output has been furnished by junior college administrators and staff members of four-year colleges and universities rather than by junior college instructors and junior college special service personnel. The authors suggested the use of incentives to get instructors and special service personnel active in research. A review of the literature for the decade following that on which the D'Amico-Merterana report was based again suggests the inadequacy of work on institutional problems and students in two-year collegiate institutions. Once again, published contributions seem to be confined to a small number of authors.

THE ENTERING JUNIOR COLLEGE STUDENT

Sex, Age, and Marital Status

Several investigators have noted that the national junior college male-female ratio is approximately 3:2. (Darley, 1959; U. S. Government Printing Office, 1962; Thurston, 1962; Blocker et al., 1965) Research on students at various institutional levels seems to indicate a difference in sex ratio between junior college and other institutions of higher education. (ACT, 1966) The 118 junior colleges studied had a combined population of 32,125 men and 20,423 women (a ratio of close to 3:2). The 108 four-year colleges which were surveyed had 16,176 men and 13,184 women (a ratio of nearly 4:3), while the seventy five-year colleges studied had 24,961 men and 23,197 women (a ratio of nearly 1:1). Finally, the thirty-eight colleges granting the Ph.D. degree had a combined population of 45,964 men and 36,862 women (a ratio of about 5:4). Such statistical reports show that the national junior college population is more predominantly male than other types of institutions of higher learning. Moreover, they indicate that the sex ratio of 3:2 in the junior college has held fairly steady since 1950.

The age variable also differentiates the junior college population from those of other institutions of higher education. This difference may apply particularly to the community college. Thurston (1962) reported that over half of the students at community colleges are typically 22 years of age or older. Medsker (1960) found that slightly more than half of the students in 10 diverse junior colleges were in the age 16-22 range, the typical college age range. About a fifth were in what might be called the younger adult category of age 23 to 25. It is noteworthy that about a sixth of the total group were thirty years of age or older.

Two trends can be identified that may have advanced the average age of college students. One is the return of veterans from the Vietnam War. The second relates to the growing tendency for mature people who have missed all or part of college to matriculate later in life. Wise (1958) reported that even between the years of 1953 and 1957, a relatively slack military period, a 47 per cent increase occurred in the number of people between ages 25 and 34 who were enrolled in college. Characteristics of such a diverse college age group include wide-ranging differences in high school backgrounds, levels of maturity, experience, and academic motives.

The marital status of the junior college students is related to the age variable. Medsker (1960) found that 23 per cent of the students in six colleges were married. The range of married students in his sample extended from 11 per cent in a rural junior college to 31 per cent in a suburban college located in a metropolitan area. It is possible that these figures may have changed within the last decade owing to the return of substantial numbers of Vietnam veterans and to changing trends in marriage patterns. Blocker (1965) states that, although no national statistics are available, approximately one quarter of all students in two-year colleges are married. Should further study indicate that the proportion of junior college students who are married is continuing

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to increase, policy makers will need to face the inevitable implications for changes in curriculum, co-curriculum, housing, student governance, and programs designed for both marital partners.

Academic Ability

A substantial amount of research on junior college populations has dealt with academic ability. Studies have frequently compared the scholastic promise of the junior college student with that of four-year college students and high school graduates without college experience. Many indices of ability have been used, including high school and college grades, ACT part and composite test scores, and other standardized tests. The results of these studies, most of which have employed large numbers of students, generally show significant mean differences in the ability of the several levels of student populations.

Hoyt and Munday (1966) found that ACT means for students in four-year colleges tended to be between one-third and one-half of a standard deviation higher than for junior college students. Data from Project Talent (Cooley and Becker, 1966), based upon 440,000 students, showed that the junior college group fell between two other groups (four-year college students and non-college subjects) on every one of the fourteen indices of ability. Seashore (1958) reported that the academic abilities of junior college freshmen, as measured by standardized tests, placed them at about the twenty-fifth percentile in median score based on norms developed on college freshmen in four-year colleges; 24 per cent of the junior college men and 20 per cent of the women exceeded the medians of students in four-year institutions.

Blocker reports another study, conducted by the Center for the Study of Higher Education, University of California, in which a similar overlap of scores was found with a difference of one standard deviation occurring between the four-year and two-year college freshmen (as reported by Blocker et al., 1965). Berdie et al. (1962) found Minnesota junior college students to be superior to high school juniors on measures of academic aptitude, but they more closely resembled the high school juniors than did students in Minnesota liberal arts colleges or the four-year colleges of the University of Minnesota. Medsker and Trent (1965) found that four-year colleges drew approximately three quarters of their freshmen from the upper 40 per cent of their high school graduating class, whereas only about half of the transfer students from the junior college (usually the higher ability students in the junior colleges) had ranked in the upper 40 per cent of their high school graduating classes.

The "open door" policy existing at many junior colleges allows students at all ability levels the "right" to higher education. Unpublished data from the SCOPE study as reported by Cross (1968) illustrates the distribution of high school students' academic ability in terms of post-high school status (i.e., whether attending junior college, attending four-year college, or not attending college after high school graduation.) The Academic Ability Test was administered to 35,000 high school seniors in 1967. Table 1 presents a simple breakdown of these students into those scoring in the top, middle, and lowest thirds of all students tested.

TABLE 1

Relationship between Academic Ability and School Status after High School Graduation (in percentages)

TOTAL AAT SCORE	NON-COLLEGE	JUNIOR COLLEGE	FOUR-YEAR
Top third (high school seniors)	16	36	71
Middle third	35	39	23
Lowest third	49	25	6

The data clearly indicate the great variability in academic ability within the junior college student population. While the four-year college students were clustered in or close to the top third of AAT scores as high school seniors and the non-college high school graduates tended to fall in the lowest third of the AAT scores, the junior college students were more evenly distributed over all three levels of ability.

Two additional studies attest to the assumed role of the junior college as the most democratic and accessible institution of higher learning. Baird (1969) examined the educational plans of students with discrepant ability and aspiration. He found that a third of the least academically talented students in his population of 21,110 students who took the 1966-1967 ACT battery still planned to achieve junior college degrees. At the other end of the ability range, Tillery (1964) found that 18 per cent of the high-ability high school graduates in California who were eligible to enter the state university entered two-year colleges instead.

On the basis of the findings of these studies, we may infer that a great deal of diversity in ability exists among junior college students. The degree of variability, however, differs from institution to institution. Hoyt and Munday (1966) note that some junior colleges have student bodies which are academically superior to the entering classes of typical four-year colleges. Hoyt (1968), on studying the diversity among junior colleges, found large differences between the average students at different institutions. Yet, when a large sample of colleges were studied, ACT mean scores tended to be somewhat more homogeneous among junior colleges than among four-year colleges despite the fact that, as a whole, two-year and four-year institutions did not differ in ranges of academic potential (Hoyt and Munday, 1966).

Several researchers have questioned the use of traditional measures of ability to label the junior college student as inferior to the baccalaureate degree student. Turnbull (1967) states that to view the student body along the narrow dimensions of academic talent is grossly inadequate. He contends, "For the students newly represented on college rolls, skills and aptitudes of quite different orders are probably the pertinent dimensions of comparison." Cross (1968) is in agreement: "Although the research concerned with abilities has apparently covered virtually the entire range of traditional measures of academic ability, part of the challenge for the junior college is that of dealing with a new student -- one for whom the traditional measures of ability may not be appropriate."

The same narrowly drawn ability measures, such as standardized tests, which may deceptively characterize the junior college as a whole, in effect discriminate against the so-called lower ability student within the junior college. For example, Biggs, (1961) found that 90 per cent of the junior college staff members who replied to his survey on the problems of enrolling students in appropriate courses were mostly preoccupied with the task of enrolling "transfer" students in appropriate courses. Biggs further found that the prediction of overall achievement in the transfer curriculum and specific achievement in the "transfer" freshman English course were considered among the most important problems faced by his junior college student personnel workers. Identification and labeling of a particular population of students as "academically inferior" seem to lead to differential treatment, usually neglect, of these students. The Committee on the Student in Higher Education (1968) points an accusing finger at the hypocrisy in national higher education policy:

> "American society has determined as a matter of national policy that liberal education is no longer the monopoly of a social elite; but in practice we still limit most of the benefits of such an education to an intellectual elite. Those whose score on I.Q. measures does not exceed 120 are relegated to second or third, fourth or fifth-class schools where, in many instances, they receive little more than custodial care until they are dumped on the labor market.....

> Rarely does one hear doubts that the homogeneous schools are good, both humanly and educationally. It is usually taken for granted that all high CEEB scores should be put in one kind of educational institution and all dullards in other institutions. No one seems to question whether the elite should be isolated from the rest of society and be persuaded of its own elitism even before it has accomplished anything save high entrance examination scores.....Even though periodic lip service is paid to the contrary proposition, it is agreed that for all practical purposes a talent for higher education, as well as the kinds of abilities which can contribute to the health and welfare of society, can be measured by standardized tests."

Socioeconomic Status

While the socioeconomic status (SES) of students is studied for many reasons, it is included in this survey expressly as a variable in the prediction of college attendance and in the comparison of between-institutions student populations.

Father's occupation is a widely used index of SES in the prediction of college attendance. Darley (1959) studied Minnesota college entrants classified by father's occupation and found that only 29 per cent of the students entering junior college came from families falling at a high (professional and semi-professional) occupational level. State colleges, surprisingly, drew a slightly smaller proportion of students from the high socioeconomic level than did the junior colleges, but 56 per cent of the students entering private colleges and 51 per cent of the women and 42 per cent of the men entering the University of Minnesota were from the high SES group. Clark (1960) reported that more than three-fourths of his junior college students came from lower white- and blue-collar homes. The local state college (San Diego State) drew heavily from the same groups, but not as heavily as the junior college, and the two universities (Stanford University and University of California at Berkeley) drew primarily from the upper white-collar group. The junior college drew almost a precisely representative sample of the city-wide occupational distribution. Hagemuier (1959) substantiated Clark's data in his study of one hundred full-time male students at Henry Ford Community College. The above studies revealed a relationship between college attendance and father's occupation. Medsker and Trent (1965) found indications that the occupations of the father showed somewhat more relationship to college attendance than did the ability of the student.

Another commonly used index of SES is parental education level. Schoenfeldt (1966), in his analysis of Project TALENT data, and Medsker and Trent (1965) are among those who found the education of the mother to be more significant in predicting college attendance than the education of the father. The SCOPE data, however, showed little difference between the predictive power of father's versus mother's educational level. Astin _et al_. (1967) indicate that the mother's education has more influence on the women's choice of college than on men's choice. Fifty-seven per cent of the freshman women attending universities reported that their mothers had had at least some college education. For four-year college women the percentage was 42 and for junior college women, 34. The percentage range was smaller among men reporting mothers with some college education, extending from 27 per cent enrolled in junior colleges, to 38 per cent in four-year colleges, and 39 per cent in universities.

Cross (1968) believes that variables such as the educational and occupational levels of the parents are generally indicative of the quality of educational stimuli in the home and of parental attitudes about education. Medsker and Trent (1965a) found that students who said they did "quite a lot" of serious reading tended to report that their parents also read serious material often. Students were also found to reflect rather faithfully the interests of their parents in such subjects as magazines and music and the extent to which they discussed current affairs. Thus, as expected, parental influence goes beyond the sheer economic component of SES.

The attitude of parents regarding college attendance also influences student decisions to go to college and the choice of type of college. Cross (1968) extracted data from the SCOPE study in which high school students were asked how interested their parents were in having them continue their education in "some sort of college or special school after high school." The percentages of students reporting various degrees of encouragement by their fathers are shown in Table 2. The percentages of students reporting encouragement from their mothers were nearly identical.

TABLE 2

Relationship Between Father's Interest in Education Beyond High School and Student's Post-High School Educational Status (from Cross, 1968)

(in percentages)

EXTENT OF ENCOURAGEMENT BY FATHER	NON-COLLEGE	JUNIOR COLLEGE	FOUR-YEAR COLLEGE
wants me to go for sure	26	55	66
encourages, but does not insist	27	26	20
would like it, but thinks we can't afford it	5	1	1
leaves it up to me	27	11	8
doesn't want it, but does not say no	2	1	1
won't let me go	1	0	0
don't know	13	5	4

Table 2 indicates that students who entered four-year colleges were much more likely to have received parental pressure to attend college than either those who did not enter college or those who entered junior college. Also, not only were the parents of both junior college and four-year college students more encouraging, but they were also more likely to have discussed their opinion on higher education with their children. Forty per cent of the non-college subjects perceived no particular parental opinion (e.g., "leaves it up to me;" "don't know") compared with only 16 per cent of the junior college students and 12 per cent of the four-year college students.

Socioeconomic status, as measured by father's occupational level, has also been compared with student's occupational aspiration. Cross (1968), once again using the SCOPE data, states that all groups of young people strive for upward mobility to reach a higher occupational level than that of their fathers. Yet, the differences in occupational strivings of the three groups of students are pronounced. Table 3, taken from Cross, illustrates the point.

TABLE 3

Student's Occupational Aspiration Compared with Father's Occupational Status

(in percentages)

OCCUPATIONAL LEVEL	NON-COLLEGE	JUNIOR COLLEGE	FOUR-YEAR COLLEGE
UNSKILLED OCCUPATIONS			
Father's job status	42	23	17
Student's aspiration	14	6	1
SKILLED AND SEMIPROFESSIONAL OCCUPATIONS			
Father's job status	36	45	33
Student's aspiration	49	30	10
MANAGERIAL AND PROFESSIONAL OCCUPATIONS			
Father's job status	23	32	50
Student's aspiration	36	64	89

Summarizing the foregoing studies on the SES of junior college students leads to the following conclusions: (1) Father's occupation as an index of SES finds the largest proportion of junior college students' fathers (at least two-thirds of the total population) in non-managerial and subprofessional occupations whereas the proportion of four-year college students with fathers in these categories falls to fifty per cent or lower. Also, the parents of junior college students tend to approximate a representative sample of the nation's occupational distribution; (2) Using parental education as an index of SES leads to similar findings: the percentage of parents of junior college students with college education is approximately one-third; the percentage for parents of four-year college students is somewhat higher; (3) SES also implies differing home environments. Students reflect their parents' interests, and interest in having one's child pursue a college education differs among the parents of non-college, junior college and four-year college youth; (4) There is a greater discrepancy between junior college students' occupational aspirations and their father's occupation than is found for the non-college subjects.

The fact that junior college students reflect a cross section of the community confirms the role of the junior college as a democratizing agent in higher education. The large proportion of students from the middle and lower social classes in the junior college implies that these students either cannot attend or do not desire to attend other types of higher education institutions. Yet, they show a desire to attend college. The junior college has the function of motivating these students from lower social groups to continue college, often without the support of their families. Even with parental encouragement, the students from lower social classes lack the benefit of informed guidance since college attendance is not a tradition in such families.

Reasons for Choosing Junior College

Blocker (1965) identifies several factors that he feels impel most high school graduates to continue their education. An examination of these conditions provides a useful means of exploring student reasons for going to college. First, Blocker suggests that college-age youths are likely to perceive the two-year college as a public institution supported by their parents and by an affluent society for the purpose of providing all high school graduates with the requisite credentials to acquire the material benefits of our society. They are supported in this belief by a growing tradition that post-high school education is the key to personal success in the society. A closely related belief holds that college is the preferred training ground for vocational self-betterment. Numerous studies of the college attendance motives of students attest to the importance which is attached to the vocational preparation objective.

Secondly, high school students are subjected to strong faculty and peer pressure to attend or plan to attend college. The discussion of college plans is an important topic both during the class hours and among the students after school hours. The student without such plans may feel uncomfortable and may begin to question his own aspirations. Furthermore, the adolescent's need for status and security encourages him to seek identification with a high-status occupation or curriculum -- most commonly one requiring a college degree. Fourth, students are commonly motivated to seek a greater degree of emancipation from home and parents. Although most junior college students live at home, many still loosen family dependency by using college as a vehicle for further socialization and upward social mobility. Further, students may view the junior college as a milieu in which they can live and be treated as adults. Thus, the college may be seen as a major step in the liberating process toward adulthood.

Previous research offers some evidence on the question of why students choose to attend a junior college. A wide spectrum of interests and activities apparently influence this decision. D'Amico and Prahl (1959), for example, surveyed four entering classes of a community college whose students reported one or more of the following reasons for choosing a junior college.

REASONS	PERCENT OF STUDENTS RESPONDING
Cheaper than going away	70
The only way I could go to college	43
Wanted to live at home	32
Wanted to continue work in hometown	20
Other reasons (not specified)	19
Wanted to see if I could do college work	16
Wanted a two-year college course	12
Wanted to be with my friends	12
Could not get into school of first choice	2

D'Amico and Prahl's findings indicate that, for a majority of students, the comparatively modest cost is a factor in the choice of junior college. Yet, in opting for junior college, a significant number of student's appear to be expressing a desire to continue a familiar pattern of life: living at home, working in their hometown, or being with friends.

Medsker (1960) reports similar reasons for the appeal of junior colleges. Of almost three thousand students in four colleges, two-thirds of the respondents named either (1) advice of parents, counselors, and friends, (2) location of college (proximity), or (3) lower cost, as their primary reason for attending junior college. Medsker adds that these reasons have been supported by numerous unpublished studies. The percentage of students who choose the two-year college chiefly because of its program or its prestige is small in comparison to those who choose it because of expediency or of pressure from adults and peers.

Evidence in support of the forementioned findings is supplied by a more broadly based ACT survey. (Richards and Braskamp, 1967) The results of this study, which inventoried reasons for the choice of college among students in over 200 institutions, are presented in Table 4.

TABLE 4

Factors Influencing the College Decision Among Enrolled Students at Four Collegiate Levels

(in percentages)

	Level I 2-year	Level II 4-year	Level III 5-year	Level IV Ph.D.	All levels combined
INTELLECTUAL EMPHASIS					
Intellectual climate	33	44	40	46	41
Good faculty	57	65	61	68	63
High scholastic rank	53	61	60	68	61
PRACTICABILITY					
Location	60	50	55	54	55
Low cost	51	37	39	35	41
Close to home	55	39	41	36	43
ADVICE OF OTHERS					
Parents	38	40	36	37	37
High school teachers	24	25	24	22	23
School counselor	34	34	31	32	33
SOCIAL EMPHASIS					
Social opportunities	32	37	38	40	36
Fraternity or sorority	5	5	6	8	6
Good athletic program	18	17	17	15	16
Size	24	30	32	22	26

Inspection of Table 4 shows once again that students entering junior colleges report having been more influenced by practical considerations (convenient location, low cost) than by other circumstances. For instance, the data show that intellectual factors (intellectual climate, good faculty, high scholastic standing) were considered less frequently by two-year college students in choosing their college than was true of four-year, five year, and graduate students. Differences between paired frequencies on the intellectual emphasis variables were generally not large, but they were consistent for all comparisons between two-year college students and those in higher-level institutions.

The SCOPE study (cited by Cross, 1968) examined the preferences which high school students who were destined for different post-high school roles expressed for colleges answering different descriptions. In this investigation, the high school seniors responded to a questionnaire asking them to state their personal preference for one of the following four descriptions of types of colleges.

> At college A there are many good students who try to get top grades. Professors expect them to study a lot, but frequently are willing to discuss such things as current world affairs and other serious topics outside of classes. The students enjoy going to concerts and lectures given on campus.
>
> At college B there are many activities, and students are encouraged to take part. The professors go out of their way to make sure that students understand the class work, and everyone is friendly on the campus.
>
> At college C most students go to athletic events. Most students do not study on Saturdays and feel free to go to movies during the week. Everyone has a lot of fun. Many of the girls at this school expect to be married as soon as they graduate.
>
> At college D students are preparing for a particular job or career. They are mostly interested in courses which train them for occupations they have chosen. Many of the students are working part-time to pay for their education.

The respondents were subsequently categorized by their post-high school status -- four-year college, two-year college, and non-college. Table 5 presents the responses which had been given by the members of these groups at the time they were high school seniors.

TABLE 5

College Preferences of High School Students Who Were Later Enrolled in Two- and Four-Year Colleges or Non-Enrolled

(in percentages)

Type of College	Enrolled in Four-Year College	Enrolled in Junior College	Not Enrolled in College
College A	23	9	9
College B	65	62	46
College C	2	5	8
College D	10	24	37

The "friendly, active" campus (College B) was the college environment which was distinctly preferred by most subjects, as high school seniors, irrespective of which of the three post-high school groupings they fell into. Not surprisingly, the junior college students showed somewhat greater interest in vocational preparation than did the four-year college students. Also, like the ACT study referred to above, the SCOPE study showed junior college students to be less interested in an intellectual atmosphere than are students in four-year colleges. It is not coincidental that the low value which students in two-year institutions assign to "intellectual atmosphere" as a desirable campus characteristic corresponds to generally lower scores on measures of academic ability. However, the cause-and-effect relationship between these two variables is complex and not well understood.

The preference of junior college students for a vocational preparation climate is again illustrated by findings obtained with the Comparative Guidance and Placement Program's Biographical Inventory (SCOPE). Prospective junior college students were asked to state the extent of their agreement with the following statement: "The main reason for continuing your education beyond high school is to prepare for a job that pays well." Seventy-one per cent of the junior college students agreed with this statement, 26 per cent of them "strongly." When asked what kinds of courses they would like to take in junior college, 62 per cent showed preference for courses related to a possible future job.

It is sometimes falsely asserted that two-year college students are almost exclusively oriented toward jobs and employment. Baird et al. (1969) have shown that graduates of two-year colleges are also interested in general knowledge and intellectual growth as outcomes of their junior college experience. The distribution of responses which they obtained to two pertinent questions supports their claim, as follows:

What has been your major purpose while attending your college?	Per Cent
Have been preparing for a specific job in the local area	4.8
Have been obtaining general preparation for employment	11.8
Have been preparing for transfer to a four-year institution	58.3
Have been trying to increase my general knowledge and level of education	24.0
What is your most important goal in attending college?	
To learn how to enjoy life	1.2
To develop my mind and intellectual abilities	33.2
To secure vocational or professional training	45.5
To make a desirable marriage	.5
To earn a higher income	10.8
To develop moral standards	.1
To become a cultured person	2.0
To develop my personality	1.1
To develop a satisfying philosophy	1.8
None of these	4.0

A comparison of students from collegiate institutions at different levels shows the expected high percentages of junior college students who are oriented toward vocational outcomes: yet, substantial numbers are also found to be interested in the college experience as a means to intellectual development. Table 6, which presents the results of a survey of over 200 institutions, compares the educational goal choices of junior college students with those of students in higher-level collegiate programs. (ACT, 1966)

TABLE 6

Most Important Goal in Attending College
(for Students Enrolled at Different Collegiate Levels)

(in percentages)

EDUCATIONAL GOAL	Level I 2-year	Level II 4-year	Level III 5-year	Level IV Ph.D.	All levels combined
Develop mind	28	34	33	36	33
Vocational training	54	51	53	53	53
Higher income	11	7	7	6	7
Other	7	8	7	5	7

The differences are not marked. Yet, compared with students at the three upper levels, junior college students more frequently specified vocational training and higher income, and less frequently named intellectual development as the most important aim of their college experience.

The vocational outcomes of two-year college education are especially pronounced in the adult segment of the student population. Blocker (1965) reports that the majority of these students (approximately one half of the total junior college population) have families, are engaged in full-time jobs, and are involved in extensive vocational and leisure-time activities which bear little or no relation to the college. In his survey of Flint Community College, Blocker found that 75 per cent of the adult students claimed their objectives to be professional or vocational, and that 85 per cent indicated they were attending college in order to obtain a better job. The 3 per cent of adults who were enrolled in the liberal arts curriculum contrasted strongly with the large proportions of younger students attracted to this program. Also, the fact that 22 per cent of the adult students did not have clearly defined educational objectives implies that the junior college is being used as an opportunity college for sampling post-high school education without becoming prematurely committed to a degree program or specific vocational goal. Further studies are needed which will shed light on the differences between age groups in the motivational dynamics of junior college attendance, including aspirations and expectations.

Degree aspirations may also be related to the choice of a specific college. Baird _et al_. (1969) found students with plans to obtain a higher degree attached more importance to the high scholastic standards of the college and to financial aid offers. Students from lower income families considered low cost and closeness to home more important. The low-income, high-aspiration group was closer to other students from low income homes on reasons for choosing a specific college than to higher socioeconomic status students with aspirations toward higher-level college degrees.

Cross (1968) summarizes several of the student characteristics that lead to the decision to attend junior college:

> "As a group, junior college students have lower educational and occupational aspirations than students who begin their higher education in senior colleges. Although there is widespread uncertainty among young people about what they want to do with their futures, many make decisions in high school that close certain doors to them. Approximately one-third of the students who enter junior college have not taken a secondary school course of study that would permit them to enter a four-year college. The junior college students appear to be more unsettled about future plans than either the four-year college or non-college groups. They are eager for guidance regarding future planning."

Students' perceptions of their academic ability are also related to their post-high school educational level and thus may be influential in the decision of those who choose to attend junior college. Raines (1967) found that junior college students expressed significantly less confidence in their mathematical, writing, and leadership abilities than did students at four-year colleges and universities. Simultaneously, the junior college groups saw the junior college environment as less intellectual and less competitive with respect to grades. Support comes from Astin et al. (1967) who also found that junior college freshmen were less self-confident than were four-year college and university freshmen on such traits as academic ability, drive to achieve, leadership ability, mathematical ability, intellectual self-confidence, and writing ability. Knoell and Medsker (1965) found that nearly one-third of their group of junior college transfer students indicated that not feeling well prepared for senior college work was of at least some importance in their choice of college.

The SCOPE data (Cross, 1968), which sampled high school seniors, showed that 57 per cent of those who later entered four-year colleges felt "definitely able" as compared to only 29 per cent of those who later entered junior college. Students' estimates of their ratings by teachers found 75 per cent of four-year college students predicting "good" or "excellent" student ratings whereas only 41 per cent of junior college students predicted such high ratings.

Another characteristic of students entering junior college seems to be uncertainty or delayed decision about future plans. Cross (1968) reported that only 6 per cent of the SCOPE students who enrolled in four-year colleges were undecided about future educational plans at the time of high school graduation while 13 per cent of the students who entered junior colleges had not made that decision by the time of high school graduation. Quite probably, the delayed decision to enter college often narrows the choice to an open-door college where applications for admission are accepted and favorably acted upon almost until the first day of classes.

Yet another condition to consider in analyzing the decision to enter college is the accessibility of the college. Bashaw (1965) compared Florida communities having junior colleges with communities lacking junior colleges. The establishment of a new junior college in the community led to steadily increasing proportions of the population attending college over a four-year period. Medsker and Trent (1965) found that the presence of a junior college in a community was a prominent factor in the educational persistence of both students of high and low ability among the less socially advantaged. Finally, Fenske, (as reported by ACT, 1969) found that the local presence of vocational-technical institutions was influential upon the plans of those whose scholastic record did not portend further education.

Thus, the decision to attend junior college can be shown to be related to several characteristics of both the student and the junior colleges. The junior college student considers as important such practical matters as convenience, low cost, and nearness to his job and family. The junior college is seen to offer a more pronounced vocational climate. The junior college student is often not as confident of his academic ability and sees his college as less competitive than the four-year colleges. There is also some indication that the junior college student delays his decision to attend college until he may be forced to seek admittance at an open-door college. Finally, the available presence of a junior college in the local community may be a factor which precipitates the decision to continue academic training beyond high school.

Choice of a Curriculum

One way to survey entering students' curricular choice would be to compare the undecided students with students in either occupational curricula or transfer curricula. However, dependable data on the choice-of-curriculum variable are not commonly available in the junior colleges. One problem is that many institutions categorize all students into either the occupational or transfer curriculum group, making no allowance in the classification for those students who are undecided. Moreover, the superficiality of these categories (occupational vs. transfer) makes them suspect, since the final decision as to the transferability of school subjects rests with the institution which must finally accept and evaluate the course credits. Since, furthermore, most students in occupational programs are expected to begin their occupational courses immediately, many of those who are not ready to commit themselves to specific occupational curricula are labeled as transfer curriculum students. Such labeling is frequently misleading. Knoell and Medsker (1964a) found that 27 per cent of transfer students had not made a firm occupational choice at the time they entered junior college. Their study does not provide a means of distinguishing between the "decided" and "undecided" entering transfer students in junior college, but it does suggest that there are, among students categorized as transfer students, many "undecided" as well as "decided" students.

Several studies of four-year colleges have yielded differences between the undecided and decided entering student. Ashby et al. (1966) studied personality characteristics and demographic variables in order to differentiate vocationally decided from tentatively decided and undecided Pennsylvania State University freshmen. Their results indicated that the most undecided group was more dependent (personality inventory scores) than the other two groups, but no differences were found between undecided and decided students on first-term grade-point average or on the Strong Vocational Interest Blank. Ashby and his associates also found no differences between the groups on selected background variables (e.g., family income, parents' education), on tests of academic aptitude, and on personality test scores.

Another study (Bohn, 1968) hypothesized that students who were undecided differed from decided students in three ways: a) specific interest in the chosen area, b) general developmental level of interest, and c) maturity of interest. Two groups of 23 males each were selected from an entering freshman class on the basis of their responses to a questionnaire item about probable career. Students answering "undecided" and "physician" were chosen and compared. Students who had made a career decision had more highly developed interest in their specific field. This difference in favor of the physician group was not found on the measures of general developmental level of interest or on the measure of interest maturity. Contrary to prediction, the undecided students had more clearly developed interests in the areas of verbal-linguistics and sales. Such results imply that the difference between the interests of the two groups appeared to be mainly one of specificity rather than of developmental level. . .

Baird, (1967), sampled 60,000 decided and undecided college-bound students who took the ACT test battery and who planned to obtain a bachelor's or higher degree. His results led to several conclusions: a) while the comparisons suggest that the male student who is undecided is slightly less interested in science than decided students, and that both undecided men and women are less likely to be "vocationally oriented," there is no genuine difference between the student who had decided upon a vocation and the student who has not; b) undecided and decided college applicants had exactly the same mean score on the ACT Composite. Other studies (Watley, 1965; Abel, 1966; Ashby, Wall, and Osipow, 1966) support the finding that the undecided student and the decided students are not significantly different in academic ability; c) undecided students more often than decided students were found to assign higher priorities to the college goals of developing their minds and their intellectual abilities and to choose vocational or professional training less frequently as a college objective.

Thus, studies on four-year college populations indicate that the undecided student is perhaps psychologically more dependent, is equal to the decided student in academic achievement, may have greater verbal interests, and is more likely to emphasize the goal of developing his mind and intellectual ability. Trait similarities between decided and undecided students, however, seem to be more common than differences, and those differences which have been found appear not to have unusual importance.

Another method of studying factors in curriculum choice is to compare students who enter occupational programs with students in transfer programs. Several institutional and student characteristics make this comparison difficult. First, not all two-year colleges offer a full range of occupational programs. Stry (1962) found that all except one of selected Michigan community colleges had more transfer students enrolled than terminal students. Henninger (1959) reported survey results showing that most of the approximately 650 junior and community colleges of the U. S. are "dedicated to, or at least preoccupied with, preparatory programs designed for college transfer and these preponderantly in the field of 'liberal arts' or 'general' subject matter." He further noted that, contrasted with this pronounced emphasis on academic aims, is the narrow stress which many two-year institutions place upon vocational and shop courses without providing a linking area of curriculum designed to develop skills in the technologies. Henninger's study, now over 10 years old, was a call to arms for change in the junior college curriculum.

Cross (1968) noted several other problems in researching the curriculum choices of junior college students: a) frequent changes in vocational choice; b) inconsistency between research studies in the way in which the great variety of occupational curricula are classified. Within these limitations, an attempt will be made here to consider several studies which compare transfer-bound and occupational program students.

Munday's (1968) study of students entering five junior colleges compared eight pairs of terminal and transfer groups. Terminal and transfer students in six of the eight groups differed on ACT Composite test scores (transfer students making higher scores). Yet, only three of the eight group comparisons revealed differences in high school grades, a finding suggesting that test scores may enter into this type of educational planning more often than do high school grades. Munday's summary states that, although differences were found between his transfer and terminal students, such differences were so small that transfer and terminal students appear to be far more alike than different.

Brue (1969) also found that transfer and occupational male students differed in tested academic ability, but not on high school grades, at three Iowa community colleges. Female groups did not differ on academic ability, although transfer females had higher high school grades. Men in the occupational programs had lower educational aspirations and saw lack of money as a barrier to further education. Fewer of them had planned for college while in high school, and it was late in their high school careers that they made the decision to attend college. Based on their self-estimates, occupational men saw their special talents as mechanical and mathematical compared with transfer men; occupational men appeared to possess fewer interpersonal competencies and communication skills.

On the basis of Brue's data, Brue, Engen, and Maxey (1971) find their most striking conclusion to be the similarity between the two groups of women. "From essentially the same socioeconomic backgrounds, with approximately the same level of high school achievement, the two groups of women are much more alike than different on the variables included in this study." (p. 8)

Fenske (American College Testing Program, 1969) found highly significant differences between high school students planning vocational-technical programs and those planning four-year college courses. Underachievers had a markedly stronger tendency toward vocational-technical plans than high school seniors who achieved at or above their rank in measured scholastic ability. The author suggested that perhaps the experience of lower-than-expected secondary school achievement is a concomitant of dissatisfaction with the academic programs of the high school. The differences between Munday's and Fenske's results may be due to differences in populations. Fenske's students had not entered junior college whereas Munday's students were already attending junior college and included some who were nontransfer-bound but not enrolled in specific occupational programs.

Behm (1968) compared transfer and occupational freshmen in selected midwestern colleges. He found that transfer men tend to resemble typical college freshmen in scholastic ability while occupational men and both groups of women tend to be of lower ability. Also, occupational students are more likely than transfer students to have pursued vocational programs in high school, generally of a nature similar to their college curriculum. Finally, transfer students appear to be more sensitive and socially oriented while occupational students tend to be realistic and highly practical. These results are similar to those of Brue (1969). In harmony with Munday, Behm states that transfer and occupational students generally appear to be more alike than they are different. As many differences exist among occupational students in various curricula as between occupational and transfer students.

Anthony's (1964) study of 523 students in three public community colleges substantiates the consistency with which previous educational experience evidently affects the curricular choices of students. He found that students who had completed the high school academic program tended to enroll in junior college transfer curricula while those who had graduated from high school vocational programs tended to enroll in occupational curricula. Seventy-five per cent of transfer-bound students in the community colleges had graduated in secondary school college-preparatory courses while only 25 per cent had completed vocational programs in high school.

Nogle (1965) compared groups of 100 transfer-bound men and 100 transfer-bound women to corresponding groups of men and women in occupational programs at a California junior college. The characteristics studied included tested scholastic ability, high school academic performance, socioeconomic status, motivational background, and individual motivation. Transfer men tended to be slightly higher than occupational men in scholastic ability, but no difference in ability was found for women (similar to Behm's findings). All groups were similar in socioeconomic and motivational backgrounds, as well as in attitude and levels of aspiration. The only significant differences found between the groups were in types and fields of interest. Stewart (1966) also found differences in interests between California junior college occupational and transfer students. The two groups, both male and female, differed significantly in mean scores on the IAS (Interest Assessment Scales).

Blocker (1968) compared transfer and occupational students at three institutions with respect to the degree of importance attached to prestige considerations. Blocker's questionnaire findings showed that prestige was emphasized more by students selecting a transfer program than by those selecting a terminal program. Blocker proposed that many students pursue college transfer programs more through a desire for greater prestige rather than as a result of realistic appraisal of their individual capacities.

A study by Wilson (1970) compared scores on the CUES (College & University Environment Scales) of students enrolled in transfer and occupational programs. The two groups were much more alike than different; yet, they did differ on the practicality scale. Occupational students ranked practicality of environment highest whereas transfer students ranked awareness highest, as did administrators and faculty.

In summarizing the differences between occupational and transfer students, we must stress that nearly all of the studies cited here concluded that the difference between the two groups are found to be small. Several studies noted differences in scholastic ability and high school achievement; occupational students were shown more likely to have pursued vocational programs in high school; and transfer students were more concerned with prestige while occupational students were seen as more practical in several studies. On the whole, however, occupational and transfer students appear to be far more alike than different.

One implication for counselors of such findings is students' lack of realism in occupational choice. The charge applies both to those enrolled in transfer and in occupational programs. Olsen (1960) studied occupational goals of 302 students. He found that many did not recognize the difference between liking an activity and actually performing it, nor the distinction between interest in an occupation and the ability to perform the duties it requires. Students also had little information about the skills and duties required by the occupation they had chosen. Regrettably, 28 per cent appeared to have made their choice chiefly on the basis of the rewards attributed to their preferred occupation.

Work Values

Few available studies deal effectively with the work values of junior college students. However, from those studies which do exist, plus others which deal with the work values of other college-level populations or with related values and interests of junior college students, it is possible to draw some cautious inferences about work factors which appear to be important in the curriculum and occupational decisions made by two-year students.

Diversity in age has often been found to be more characteristic of junior college populations than of populations at other types of institutions of higher education. The presence of large numbers of adults, particularly in the evening programs of two-year community colleges,contributes to this diversity. The widespread age range makes it possible to study the importance of work values as an age-related variable in the making of curriculum and occupational decisions. Ginzberg et al. (1951) concluded that work values emerge as occupational choice factors at about fifteen or sixteen years of age, toward the end of what they identified as the "exploratory period" in vocational choice behavior and after the individual has begun to consider the relevance of interests and abilities to choice. Miller (1954) studied 196 college men, ranging in age from 17 to 30,in an attempt to discover whether age differences in work values existed among this heterogeneous group of subjects. His subjects were enrolled in two- and four-year colleges and pursued curricula in agriculture, technical fields, and education. Analysis of variance of his subjects' scores on the *Occupational Values Indicator* showed no significant variations in work values by age. Miller's conclusions suggest that work values may emerge as occupational choice factors and become stable at an earlier age than Ginzberg and his associates had proposed. If true, this condition would help explain Miller's failure to find a relationship between age and the ranking of work values. The issue is, however, a complex one about which little is yet known, particularly as it applies to the two-year college population.

Also of interest in describing junior college students' work values is a comparison of male and female students. Jordan (1968) administered the *Vocational Values Inventory* to California junior college students. He also interviewed the students. Except for the greater importance which females attached to altruism as a work value, males and females showed no significant differences on the values inventory. The impressions gathered in the personal interviews also tended to confirm the similarity of female and male students in attitude toward education and work. Wagman (1965) investigated the relationship between sex and work values of 259 liberal arts students at the University of Illinois by means of Centers' *Job Values and Desires Questionnaire*. He found that sophomore men stressed occupational prestige as a desired occupational characteristic more often than did sophomore women and that women valued opportunity for social service through work more highly than men did.

Rosenberg (1957) measured work values by having a national sample of 4,585 students rank values as they perceived them to relate to their career choice. The following value differences were found: women, more often than men, chose working with people rather than things and the opportunity to help others; men, on the other hand, more often stressed social status and prestige, the chance to earn a good deal of money, and the opportunity which the job affords to exercise leadership. Rosenberg also noted that women who expressed a strong commitment to work, when questioned about expected life satisfaction, were more like the men in his sample than like the other women in his sample. He labeled these women "career women." Rosenberg concluded from his data that women more often appeared people-oriented and men more often extrinsic-reward-oriented. He felt his data supported the interpretation that society, through the inculcation of role prescription, encourages men and women to want different things from their work. Sex differences tend to be related to career-orientation, with males being generally more oriented toward careers. Yet, those college women with strong career orientation had specific work values more like those of men than of other women.

To summarize the few existing studies on sex differences in the work values of college students: (1) Wide differences in the sampling procedures and instruments used render meaningful comparisons difficult, increase the hazards of generalizing to broader college populations, and reduce the likelihood of supportable implications beyond the obvious need for more research. (2) Despite the need for caution in interpreting the data, the three studies cited above contain one important common thread in that women were consistently found to be more "altruistic," to value the opportunity for "social service" through work, and to be more "people-oriented." Each of these terms is descriptive of people who care for and have concerns about others and who probably prefer to work with others in a human services capacity.

Are work values influenced by social class membership? Despite the affinity of occupational sociologists for research questions of this sort, few studies have evidently been published on the relationship between the socioeconomic (SES) status and work values of junior college students. In his study of four-year college students, Rosenberg (1957) found that students whose fathers' incomes exceeded $20,000 were more likely to value the chance to earn a great deal of money than students who had family incomes of less than $7,500. The former group also valued status and prestige more often than the latter. If Rosenberg's nationwide sample was representative of baccalaureate program students, it may be assumed that their average SES level was above that of junior college students. It would, therefore, be of interest to know whether the lower SES of junior college students is reflected in differences between their work values and those of four-year college students. No published studies on this question were found.

Since one acknowledged function of the junior college is to allow the vocationally undecided student opportunity for exploration through curricular experiences (Fields, 1962; Clark, 1962), it is of interest to determine whether the undecided student differs in work values from the vocationally decided student. Although studies of this nature focusing on junior college populations are uncommon, several published studies of four-year college students lead toward the establishment of at least a tentative position on this issue.

Several studies have failed to turn up characteristic differences between "undecided" and "decided" students on the Strong Vocational Interest Blank (Ashby, Wall, and Osipow, 1966; Munday, 1967). Present evidence from the SVIB would appear to suggest that the two groups not only are indistinguishable in terms of preferred occupational fields but also with respect to narrowness or breadth in the range or diversity of vocational interests. Corroborating evidence is supplied by studies using the Vocational Preference Inventory, a checklist consisting of occupational titles and yielding scores in terms of preferred life styles (personality types) and related occupational groups. (Baird, 1967; Ashby, Wall, and Osipow, 1966). Baird (1967) did report that both undecided men and women were not "vocationally oriented" but the overwhelming conclusion was that no tested difference existed between the student who has decided upon a vocation and the student who has not.

Miller (1956) studied the responses of 180 male college students to a forced-choice, paired-comparison instrument purporting to measure work values. Results indicated that undecided students exhibited a high valuing of security and prestige as conditions of employment. The author conjectured that the indecision of these students might be a manifestation of general anxiety. This study appears to be one of the few performed on college populations that reveal a difference between the decided and undecided student on work values. Once again, data on junior college students is sparse. Yet, because the junior college population is known to embody a high percentage of undecided students, studies of the type reported here would be particularly pertinent with two-year collegiate groups.

The problems which one encounters in attempting to review the literature on the relationship between occupational or curriculum choice and work values are numerous. First, few such studies on junior college students are available. Secondly, although several studies at the high school level have used students with vocational-technical objectives, there is no evidence on the proportion of these students who moved on to junior college. Thirdly, several studies which sampled high school and four-year college students included many such students with expected college patterns (based on anticipated college major) similar to those of students in junior college transfer programs; yet, it would be hazardous to generalize about junior college transfer students from data derived from high school and four-year college groups without controlling for important differences in the junior college population, such as those related to socioeconomic status and academic ability. Fourthly, one finds considerable variation from study to study in the measures of work values which have been used as well as in the curricular and occupational preference patterns with which the work values data are being compared.

Some of the foregoing problems can be illustrated by reference to specific studies. Schwarzweller's (1960) study of the work values ranking of high school students appears to differentiate occupations only on the basis of very broad job families; e.g., health careers, education, and manufacture. Abe and Holland (1965) administered the Vocational Preference Inventory to 1200 college students and grouped occupations into presumably conventional academic areas; yet, their vocational and trade area curiously included those students with prospective majors in home economics education, business education, trade and industrial education, industrial arts education, library science, and homemaking. Furthermore, some investigators seem to select for comparative study, either arbitrarily or on grounds of convenient availability, occupational groups for which meaningful comparisons are difficult. For example, Super and Kaplan (1967) administered the Work Values Inventory to business school students, machinist students, Peace Corps trainees, and guidance counselors.

A final problem met in studying relationships between occupational or curriculum choice and work values is that some investigators use both male and female subjects in their samples but fail to differentiate the sexes in reporting their results; other investigators use both male and female research samples but are careful to report the findings separately; and still other investigators use only male subjects.

Hopefully, this examination of the problems which plague attempts to study the relationship between curriculum or occupational choice and work values will not divert attention from the importance of the issue. The pointed need for more investigations with junior college students has already been stated. Also needed is much greater coordination of the efforts of different researchers. Widely used instruments for the measurement of work values should be revalidated. Finally, socioeconomic status, achievement, age, and sex role concomitants of individual work values and work value profiles should be more fully studied as one approach to the understanding of the dynamics of occupational planning and choice making among junior college students.

THE CAREER PATTERNS OF JUNIOR COLLEGE STUDENTS

How stable are the curriculum plans of junior college students? What changes in curriculum occur over the two-year period? What environmental, personal history, and trait variables are predictive of curricular stability and change? What relationship do student shifts in self-concept and self-esteem bear to the institutional career patterns of college students, especially to change in curriculum? This section of the report deals with the foregoing questions. It also presents a brief review of the related conceptual and theoretical issues.

It is possible to study student change during college in several ways. Feldman (1970) describes a number of approaches in his examination of the literature. He notes first that many college studies are not based on an explicit theory concerning the dimensions of student behavior which are most likely to be affected by the college experience. In general terms, many of these studies are saying, "Here are some interesting dimensions that may or may not be affected by the college experience. Let's compare college-class levels to find out." (Feldman, 1970, p.7) Typically, studies not based on theory would not set out to predict the nature of student change, including the direction and degree of change. Feldman found, however, that most authors do make predictions about the outcome of their data. One type of predictive research Feldman labeled "actuarial predictions." Such predictions are based on trends indicated by past and concurrent research and lack the development of a theoretical framework.

Several theoretical approaches to the study of student change behavior may also be noted. One such approach predicts outcomes from the presumed goals and functions of higher education. The investigator either views the goals of higher education as obvious in nature and not in need of defense or as the way they ought to be. The goals posited vary in the degree of acceptance by educators. Cognitive goals, such as the demonstration of increased knowledge of formal subject matter, seem quite widely accepted; affective goals, such as active participation in responsible citizenship, are less consensually endorsed.

A second theoretical line of attack predicts and interprets change on the basis of a framework of personality development. Thus, freshman-to-senior or freshman-to-sophomore changes are viewed in terms of "progress", or lack of it, toward increased maturity. A major difficulty with this approach is that personality and attitudinal change are often not easily and unambiguously interpreted in terms of development and maturity. To circumvent such problems many investigators specify in advance what sorts of changes are to represent increases in maturity and which are not. Still, there is a tendency to reinterpret unexpected (and unpredicted) results as evidence of increasing maturity. Feldman states, "The 'progress' aspect of the personality-development framework appears to be so compelling that increasing maturity is posited even in the face of what might seem to be evidence to the contrary." (Feldman, 1970, p.8)

Yet another theoretical approach emphasizes the socialization functions of higher education focusing on the distinctive life cycle and social-systems context of college students. Those whose research is linked to this persuasion believe college prepares and certifies students for social and occupational positions in the middle and upper-middle-class of the general social system. Social preparation in this approach is seen by Feldman to include making the break with family and developing an independence of spirit, social skills, cultural sophistication, and values typical of the middle and upper-middle-class occupational world. For instance, studies supplying evidence that the higher the socioeconomic status of the family, the more likely a young person is to attend and finish college empirically support the contention that college acts as a "social sieve" to help guard the entrance to higher levels of social and economic status. However, the developing youth counterculture and the movement toward compensatory college education for the disadvantaged appear to be changing this social mechanism.

A final approach to the study of student change rejects the previously mentioned frameworks which more or less assume the existence of inter-institutional similarities. This approach concentrates on the variation among colleges. "Differential impacts are inferred directly in terms of the differences among colleges, rather than in terms of the preconceived notions of the three approaches described above." (Feldman, 1970, p.11) The "social organizational approach," then, has the merit of focusing on how college environments vary and of theorizing about, and then studying, differential impacts directly in terms of this variation.

Feldman observes that researchers sometimes yield to the temptation to reinterpret data to fit theoretical frameworks. Moreover, certain experimental techniques may bias results. For instance, Lehmann, Sinha, and Harnett (1966) and Plant (1962) found that changes in personality scale scores were not the result of college impact but seemed better accounted for in terms of the maturation of bright young adults regardless of college attendance. Yet, Thistlethwaite and Wheeler (1966), Skager, Holland, and Braskamp (1966), and Feldman (1970) report that changes do appear to be related to college impact. One major difference in these authors' studies is that Plant and, also, Lehmann, Sinha, and Harnett used student samples from single institutions while the authors who did find change to be related to college impact had studied populations at a variety of institutions. Thus differences in sampling procedures may have affected their results. Furthermore, depending on the use of a cross-sectional versus a longitudinal design, the researcher himself may become an inadvertent factor in changing the images of the institutions being studied. Thus, not only may investigator bias affect the interpretation of data but additionally, the design of a study and the particular sampling procedures used may introduce confounding variables which further complicate the interpretation of findings.

Several general patterns of college student change are cause for controversy. First, a number of investigators (Sanford, 1965;

Freedman, 1965) have argued that major changes in student attitudes and outlook occur early in the college experience owing to the life stage of freshman and sophomore students. Operating within a framework of personality development, these authors see freshmen and sophomores as more sensitive to the influences they encounter. Juniors and seniors are seen as occupying a different developmental stage at which change is leveling off. Factors related to strong environmental press might also lead to hypothesizing greater change during the freshman and sophomore years. During the freshman year, in particular, the greatest change in life style would seem to be taking place. The academic challenge is first tested; expectations and the realities of college must be reconciled. Yet, Feldman and Newcomb (1969), in their major review of the literature on college students, found no clear indication that freshman-sophomore change is greater than junior-senior change. They reason that some colleges may challenge the student more in the upper-division years. Furthermore, even if the challenges of the first years are conceded to be greater, students may differ in the amount of time required for the impact of these challenges to register as personality change. The only consistent exception they found in the literature was a freshman-sophomore decrease in authoritarianism that was larger than sophomore-junior and junior-senior decreases in authoritarianism.

Feldman and Newcomb's (1969) comprehensive review of the literature on student change during college, although focusing on four-year colleges, is also of interest to a review of junior college studies. The consistency with which research reports reveal student changes in certain characteristics of other college populations suggests the fruitfulness of undertaking new studies which hypothesize that the same findings will hold for the junior colleges as well.

> "Freshman-to-senior changes in several characteristics have been occurring in recent decades with considerable regularity in many American colleges and universities. Numerous studies show that during their college years students, on the average, decline in authoritarianism, dogmatism, and prejudice. They become more liberal with regard to social, economic, and political issues. In addition, they come to value aesthetic experiences more highly. These freshman-to-senior changes indicate an increasing openness to multiple aspects of the contemporary world, presumably paralleling wider ranges of knowledge, contact, and experience. Somewhat less consistently

> across studies, but nevertheless evident, are increasing intellectual capacities and interests. Declining commitment to religion, especially in its more orthodox forms, is also apparent. Also, certain kinds of personality changes--particularly trends toward greater independence, self-confidence, and readiness to express impulses--are the rule rather than the exception." (Feldman, 1970, p.2).

Feldman and Newcomb also showed, by a type of correlational analysis, that initial differences among students entering different environments within a given college tend to be accentuated during the students' stay at college. They suggest that, if students differing on some characteristic, for example, self-esteem, are not uniformly distributed among the various environments within the college, such as transfer and occupational curricula, this characteristic will show an accentuation of initial differences during the college experience. The relative importance of environmental and personality variables in accentuating such differences is not known. Thus, difficulties are posed in research attempts to establish unambiguous cause-effect relationships between the college experience and behavior changes.

Feldman and Newcomb found relatively large differences among colleges with respect to the reported attitudes, values, and personality traits of the "typical" student. Furthermore, colleges differed greatly with respect to such important institutional characteristics as social structure, size, faculty, and degree of press. On the basis of these findings, Feldman and Newcomb predicted that the direction and extent of the impact which college has on students will differ from institution to institution as a function of their divergent environmental characteristics. These predictions were subsequently confirmed by their data.

What generalization may be made about the extent to which the beginning student's background may affect the college experience's potential to change his behavior? Although it is often logically predicted that, for students who remain in college, change will be greatest for those whose backgrounds are most discordant with the particular college environment, Feldman and Newcomb have shown that this claim is not supported by the majority of studies reported in the literature. On the contrary, the more dissonance between a student and his college environment, the greater the likelihood that he will withdraw from his college and from higher education.

On the basis of Feldman and Newcomb's review of studies on four-year college students, we may raise the following pertinent questions concerning student behavior change in the junior colleges: (1) Does greater change take place during the freshman or sophomore year? (2) Do demographic characteristics, such as sex, age and SES, function as moderator variables in predictions of the impact of the college experience upon the direction and extent of student behavior change? (3) Do measurable group differences between transfer and occupational curriculum students (for example, differences in the prestige or status which the two groups enjoy in their institutional setting), accentuate the initial differences between students? (4) Are differences in college impact related to inter-institutional differences? (5) Does discordance between student and college environment lead to withdrawal from college? Is discordance less likely or more likely to occur among students enrolled in transfer programs, as compared with those in occupational curricula? It may be argued that informed policies governing admissions and curricula in the junior colleges should rest at least in part upon answers to such questions as these. However, very few national studies deal with these seminal issues. The majority of available studies must consequently limit their implications to the specific colleges sampled and to their idiosyncratic operational definitions of major constructs.

Self-Concept, Vocational Aspirations, and Career Patterns

One aspect of personality which has been assigned a prominent place in a number of contemporary theories of vocational choice and development is the self-concept. Super's work provides what is perhaps the best illustration. According to Super, "The process of vocational development is essentially that of developing and implementing a self-concept." (Super, 1953, p.190)

While Super appears to imply that the self-concept is an unitary construct, Wrenn (1958) and Blocher and Schutz (1961) agree that a person has many self-concepts, perhaps one for each social role he fills. These authors suggest the possibility of the existence of a distinct vocational self-concept, distinct in the sense that how one perceives himself as a worker or potential worker may differ from his self-image in other settings and relationships. Blocher and Schutz hypothesized that an individual's vocational self-concept would be more like the stereotyped member of an occupation in which he showed interest than that of a field in which he lacked interest. Confirmation was provided by their studies which showed that the self descriptions of high school seniors bore a closer resemblance to stereotypes of their high interest occupations than to stereotypes of their low interest occupations.

Although, as indicated, authors disagree on the unity of the self-concept construct, a great many of them theorize that one's self-concept is critical in the development and implementation of career plans. Several investigators have generated hypotheses about students' change in college major on the basis of this notion. Warren (1961) hypothesized that discrepancies between a student's self-concept and his role expectations of his chosen occupation are likely to lead to a shift in occupational choice and, consequently, to a change in college major. Warren's subjects, 525 National Merit scholars, were given the Omnibus Personality Inventory (OPI) as a measure of self-concept, and occupational role expectations were measured by having these subjects rate the importance to them of thirteen sources of job satisfaction. For most subjects, concurrence was found between patterns of self-concept and role expectations. For example, subjects high on the complexity and thinking introversion scales and low on the authoritarian scale of the OPI tended to rate freedom from supervision high as a source of job satisfaction and to attach less importance to such conditions as "stable" and "secure future." Warren found more changes in college majors among those students with discrepancies between self-concept and occupational role expectations. However, what the precise causal relation is between self-concept and role-expectation disparity, on the one hand, and the tendency to change one's field of study, on the other, remains to be determined.

Fairchild (1964) sought to measure the stability of the self-concepts of junior college students over a two-year period and found that small, but significant, changes occurred. Self-concept scores improved while discrepancy scores (self-concept vs. self-ideal) decreased, both for those remaining in school and those who left. Students with high self-concept scores tended to maintain those scores and students with low self-concept tended to increase them. No significant differences in stability of self-concept was found between men and women students or between students of differing academic ability. Yet, students who increased (improved) their self-concept scores tended to retain their college majors while students who decreased their self-concept scores tended to change their majors.

Thus, the two preceding studies yielded relationships between the self-concept and the tendency to change majors. Warren, studying four-year college students, found a change in major to be more frequent among students with marked discrepancy between self-concept and occupational role expectations. Fairchild, studying two-year college students, found the tendency to change majors to be related to the direction of change in self-concept.

One strength of the junior college is that students frequently have the opportunity to reassess their academic performance and interests and change their aspirations from occupational programs to transfer programs or from transfer programs to occupational programs. Yet, many two-year institutions see their function as that of "feeder" schools for the four-year colleges and, thus, favor the transfer-bound student. It is not uncommon, in institutions where this condition prevails, to find low status, and even the stigma of failure, associated with occupational curricula. In such instances, we would expect that occupational students would possess lower than average self-esteem and show a tendency toward reduced aspirations. Surprisingly, there seems to be little in the published literature either to lend support to or to refute this expectation. Gartland and Carmody (1970) did find that students who changed from transfer to vocational-technical programs constituted only 11.5 per cent of their sample, a fact which suggests that a change in this direction (i.e., reduced aspiration) is not a popular one. However, few if any available studies have compared transfer and occupational students on self-esteem or measured the changes in student self-esteem which are typically associated with raised or lowered curricular and career aspirations. Here, again, is a fertile field awaiting cultivation.

One dimension of the self-concept, including self-esteem, may be reflected in the individual's avowed work values. Published research on the work values of college students has been reported earlier in this chapter. Additional studies exist, however, which present data on the relationship between change in college major and work values. Davis (1965) explored the issue by means of a self-administered questionnaire on work values and occupational choice which he used with over 33,000 students from 135 colleges and universities granting baccalaureate degrees. Students were asked to complete the instrument each year of their college experience. Results indicated that work values and college majors tended to become more congruent by the senior year. However, no evidence was presented that values change with the college experience. Earlier, in a widely publicized report, Jacob (1957) had reviewed studies dealing with value changes in college students and had concluded that college did not make a very fundamental difference in the basic values of most students. Assuming this generalization holds true, although some critics have challenged it, there appears to be no evidence to suggest it does not apply equally to junior college students. Since, however, two-year institutions encourage opportunities for realistic occupational exploration through curriculum experiences and counseling, research is needed to ascertain whether they have the effect of increasing both the student's knowledge of his personal values and the congruency of such with his choice of curriculum.

Career Patterns as a Function of Initial Curriculum Choice

Astin and Panos (1969), also Astin (as reported in Holland and Whitney, 1968),have concluded that patterns of change in curriculum choice are not random but, rather, are related to the student's initial choice. In their own study, Holland and Whitney (1968) polled freshmen twice concerning their vocational aspirations, the second instance following the first by eight to twelve months. The colleges sampled enrolled students with a wide range of potentialities, interests, and socioeconomic levels. Fifty per cent of the men and 60 per cent of the women reported the same occupational preference on both surveys. However, the stability of preference varied greatly with the occupation named. To some extent, the stability of the student's preference is a function of the popularity of that occupational choice. At the same time, greater stability of preference appears to be associated with those occupations considered to be the most appropriate for each sex.

In general, studies suggest that students tend to remain in the same major occupational group even if they specify a change of preference regarding curriculum. Thus, at the junior college level, we would ordinarily expect a change from a transfer to an occupational program to fall within a related field of interest. Also we might expect changes in student preferences to be in the direction of those occupations considered to be most appropriate for each sex.

Clark (1960) and Simon (1967) have identified the concept of "cooling-out" as one of the functions of the junior college in dampening the unrealistic ambitions of large numbers of junior college students. The "cooling-out" process involves lowering a student's aspirations such that they are more in line with his abilities and prospects for success. In contrast, the "warming-up" process involves raising the student's aspirations to correspond with his abilities.

Some studies seriously question the effectiveness of the "cooling-out" function. For example, Lutz (1968) showed that educational aspirations are fairly consistent over the high school-to-college transition and that, further, there is a greater tendency for four-year college students who originally planned less than a B. A. degree to have raised their level of aspiration than there is for two-year college students who originally planned on the B. A. degree to have lowered their aspirations. Baird (1969) also studied the "cooling-out" and "warming-up" processes on a sample of students attending 27 junior colleges. His results indicated that, despite the assumed mission of the institutions involved, students seldom lowered their degree plans or "cooled-out" during their two years of junior college; instead, nearly half of the students raised their degree aspirations or "warmed-up." Still, many educators and policy makers consider "cooling-out" to be a legitimate and important function of the two-year college.

McCallum (1968) attempted to identify a number of factors related to the decisions of junior college students to major in vocational-technical fields. He was able to differentiate between junior college graduates who made initial and deferred (delayed) decisions to major in vocational-technical programs. McCallum's data showed that deferred-decision students were older than initial-decision students and scored higher on scales of the School and College Ability Tests (SCAT). In addition, the deferred-decision students had earned higher grades in high school, but this trend was reversed in college. The initial-decision graduates were much more positive and enthusiastic in their comments on college courses and counseling and, while the students in this group were distributed over the whole range of vocational-technical majors, the deferred students, by contrast, tended to major in areas recognized as conferring higher status. Approximately three fourths of the students in each group planned to continue their education at senior (i.e., four-year) institutions and hoped to attain at least a baccalaureate degree. McCallum concluded that the junior college performs a valuable "salvage" function by providing suitable programs for students who start out in transfer programs but are redirected into vocational-technical programs.

Another major study (Gartland and Carmody, 1970) surveyed the direction of change in curriculum among junior college students. Their data are summarized in Table 7, which is somewhat modified from their study. Inspection of the table shows a greater percentage of vocational-technical students than transfer students completing programs. The percentages of students who change from one program to another is small, 11.5 per cent shifting from transfer programs to vocational-technical programs and 13.5 per cent from one vocational-technical program to another. Regrettably, Gartland and Carmody's data do not include information on students who change from vocational-technical programs to transfer programs (raised aspirations).

On the basis of the limited number of studies available for review, a few tentative conclusions can be drawn about the nature of junior college students' curriculum changes: (1) more junior college students tend to raise their aspirations during college rather than lower them; (2) students with deferred decisions to major in vocational-technical programs appear somewhat less satisfied with their program and tend to select occupational curricula with comparatively high status; (3) there is little change from transfer to occupational programs and from one occupational program to another.

While evidence on the frequency of shift from occupational programs to transfer programs is not abundant, we may suspect

TABLE 7

Selected Career Patterns of Community College Students[a]

CAREER PATTERN GROUP	PERCENTAGE OF STUDENTS WITHIN CAREER PATTERN GROUP (Mean Percentage for all institutions)	INSTITUTIONS REPORTING INFORMATION (N)	INSTITUTIONS REPORTING INFORMATION (%)[b]	INSTITUTIONS REPORTING NO INFORMATION (N)	INSTITUTIONS REPORTING NO INFORMATION (%)	INSTITUTIONS RESPONDING TO ITEM (N)	INSTITUTIONS RESPONDING TO ITEM (%)[c]
Students Completing Transfer Program	49.9	305	59	216	41	521	93
Students Shifting from Transfer to Vocational-Technical Program	11.5	211	41	304	59	515	92
Students Shifting from One Vocational-Technical Program to Another	13.5	230	45	281	55	511	91
Vocational-Technical Students Completing Some Program	59.1	331	62	201	38	532	95
Students Completing Vocational-Technical Program and Obtaining Employment Directly Related to Training	80.3	272	53	238	47	510	91

[a] Adapted from Gartland and Carmody (1970)

[b] Each figure in this column is calculated as a percentage of the institutions responding to the item

[c] Each figure in this column is calculated as a percentage of the total number of institutions returning usable questionnaires

that status pressures induce many junior college students to follow this career pattern. Whether they are successful depends not on academic competence alone, but on institutional policies and attitudes, as well. Thus, the career patterns of junior college students are influenced by the types of environmental pressures and program opportunities which characterize the institutions they attend.

One may speculate that the limited number of students who change and then complete programs reflects in part a polarization within and between institutions on the occupational versus transfer issue. Institutional policies often make it difficult for students to change programs without suffering inconvenience. Thus, two-year institutions which are supposed to provide broad opportunities for curriculum tryout and career exploration may, instead, lock students into their initial, often prematurely chosen, programs. Charges of program narrowness and rigidity are frequently leveled against vocational-technical programs. Venn (1964) and Thornton, (1966) have concluded that occupational education may be better carried out by comprehensive community colleges than by vocational-technical school because the latter have tended to neglect the importance of general education. In the same vein, it appears that the comprehensive community college may have greater potential for providing students with a range of opportunities to explore educational and occupational alternatives.

Lutz (1968) found that students in their first year of college generally follow their announced curricular plan, or one closely related to it. When students fail to pursue their intentions, their behavior often seems to reflect not only a change of mind but also a change in the policies and opportunities presented by their colleges. Thus, once again, the impact of the institutional climate upon the program plans and histories of students appears formidable.

FOLLOW-UP STUDIES OF JUNIOR COLLEGE STUDENTS

Studies of Transfer Curriculum Students

Several follow-up studies have compared the performance of baccalaureate program students who were transfers from junior colleges with that of students continuously enrolled in four-year institutions. Medsker (1960) summarized the findings of many of these studies. His data showed that transfer students generally achieved at a lower scholastic level in the first term after transfer, compared to native students, i.e., students initially and continuously enrolled in four-year colleges. However, in most institutions studied, the students who had originally transferred from junior college closely approximated the performance of the native students by the end of the senior year, and, in a few instances, they slightly surpassed it. Where differences occurred, they tended to be of a magnitude of not more than 0.3 grade points, and often less. In most institutions, however, the retention rate for the transfer students during the junior and senior years was markedly lower than for the native students. Correspondingly, the percentage of transfer students earning degrees at the end of the second year following transfer (the "normal" time required to earn the baccalaureate degree) was generally much lower than for the native students. Many institutions reported that greater numbers of transfer students, in comparison with native students, completed their baccalaureate degrees at later dates. Naturally, there were variations among the reporting colleges and universities with respect to how transfer and native students distributed themselves on the factors of performance, retention, and degrees earned. Sex-related differences were also found. For example, transfer women tended to surpass transfer men in academic performance.

Medsker also summarized the findings reported by junior colleges which followed up their transfer program students. These are presented in Table 8.

TABLE 8

Percentages of Two-year College Students

Withdrawing and Graduating from Four-year College

Percentage Intervals	Colleges reporting per cent of transfers in residence less than one year			Colleges reporting per cent of transfers in residence only one year			Colleges reporting per cent of transfers who graduated		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
99-90	0	0	0	0	0	0	1	0	1
89-80	0	0	0	0	0	0	0	0	0
79-70	0	0	0	0	0	0	1	2	3
69-60	0	0	0	0	0	0	2	3	5
59-50	0	0	0	0	0	0	6	1	7
49-40	0	0	0	0	0	0	13	2	15
39-30	2	0	2	2	1	3	10	1	11
29-20	8	0	8	7	1	8	10	1	11
19-10	29	5	34	21	5	26	5	0	5
9-00	11	6	17	20	4	24	3	0	3
Totals	50	11	61	50	11	61	51	10	61

TABLE 9

Median and Range of Percentages of Two-year College Students Dropping Out and Attaining Baccalaureate Degrees Following Transfer to Four-year Colleges

	PER CENT IN RESIDENCE LESS THAN ONE YEAR			PER CENT IN RESIDENCE ONLY ONE YEAR			PER CENT GRADUATED		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
Median	14	9	13	12	13	12	37	61	40
High	33	18	33	36	33	36	90	80	90
Low	2	0	0	0	4	0	0	28	0

Table 9 shows the median percentages and ranges of percentages of transfer students who were in residence in four-year institutions for the indicated periods of time. Forty per cent of all transfer students received a baccalaureate degree by the end of four years dating from their entrance to junior college. Students from private junior colleges showed a much greater tendency to graduate in the normal time period.

Medsker offered several generalizations on the basis of the results of his surveys. The fact that transfer students earn senior college grades comparable to those of native students, he reasoned, reflects both a high quality of teaching in the junior college and the natural selection that takes place during the two years at junior college. Still, the junior college transfers have a much higher rate of attrition than native students before attainment of the baccalaureate degree. Medsker appeared to find no suggestion in his data that this attrition is typically due to poor scholarship. Instead, the lower socioeconomic background of many junior college students may give rise to motivational and financial factors which contribute to their high attrition rates. A related circumstance concerns the problem of adjusting to the new institution following transfer. Most four-year colleges, and particularly the large universities, Medsker felt, do little to orient and assimilate transfer students.

Some support for Medsker's generalizations comes from more recent studies. Knoell and Medsker (1965) found that financial problems ranked first among the reasons for withdrawal given by junior college students who had completed transfer to a four-year college but later withdrew. Forty per cent checked "lack of money" as one reason for dropping out. Even though only half as many students worked after transfer as did when they were in junior college, "the grade point differential suffered by most transfer students was the major deterrent to financial solvency--it was difficult for them to qualify for financial aid after such a drop, and they were frightened by the drop to the point that they felt compelled to give up the part-time job." (pp. 70-71)

Medsker's findings that the percentage of transfer students receiving degrees at the end of the four-year period following initial entrance to junior college is much lower than for native students is also supported by more recent studies. Trent and Ruyle

(1965), in a longitudinal study of 10,000 high school graduates, found that only about 10 per cent of those who began their college careers in junior colleges in 1959 had obtained baccalaureate degrees by June 1963; the comparable figures were 27 per cent for state college entrants, 36 per cent for public universities, and 49 per cent for those entering private colleges and universities. Yet, several investigators (Cross, 1967; Knoell and Medsker, 1965) have noted that it is no longer the norm for college students to make an orderly progression through college in four years. Knoell and Medsker (1965) predicted that at least 75 per cent of junior college transfers will receive degrees eventually, but fewer than half within the "normal" four-year period.

As has been shown, most follow-up studies of transfer students compare them with native four-year college students. It would also be revealing, however, to compare junior college graduates who enroll in a senior college with junior college graduates who do not enroll in a senior college. In one study (Cooper, 1964), the graduates of two selected junior colleges who continued at four-year institutions did not appear to differ significantly from non-continuing graduates on the following variables: age at matriculation, father's educational level, mother's educational level, SCAT scores, final grade-point average (GPA), financial dependency, family responsibilities, number of siblings, number of semesters enrolled, and number of semester hours earned. Stettedahl (1968) compared a group of community college students who transferred to a four-year college with a group of non-B. A. bound students who were also enrolled in the transfer program. The only variable that seemed to distinguish between these two groups significantly was the GPA when sex differences were disregarded.

How much satisfaction do students retrospectively express with junior college after transfer to a four-year institution? Cross (1968), in her comprehensive review of the research on junior college students, was impressed by the scarcity of investigative data bearing on student reactions to their junior college experience. Knoell and Medsker (1964a) studied junior college students who later transferred to four-year colleges. They found that students who transferred generally gave their junior college a high rating. Student response to a question asking whether they would make the decision to attend a junior college if they were to start over again under the same circumstances was generally favorable. Forty-two per cent of the students responded "definitely yes;" an additional 29 per cent said "probably yes." These data also provided evidence about the type of student most satisfied with present junior college educational programs. Students who transferred to private universities generally gave the highest ratings to their junior colleges while students who transferred to technical institutions gave their junior colleges the least favorable ratings.

Cross (1968) inferred from this finding that students in vocational and occupational curricula in junior college are probably less satisfied with their college experience than the transfer group studied by Knoell and Medsker. The transfer students rated specific aspects of their junior college experience quite favorably: 77 per cent gave high ratings to faculty knowledge of subject matter, 87 per cent to quality of teaching, and 79 per cent to adequacy of the range of courses offered. Also, junior college transfers gave their counselors and faculty advisers a better rating than they did similar counseling services offered by the four-year colleges to which they transferred.

Baird, Richards, and Shevel (1969), in a comprehensive follow-up survey of a large sample of two-year college graduates, found that 73 per cent of those planning, as entering freshmen, to transfer to a four-year institution still planned to do so at the time they graduated. Yet, one third had not yet sent for applications, one third had applied and not received a reply, and only one third had already been accepted by a four-year college. Students in the Baird _et_ _al_. study seemed to be fairly well satisfied with the quality of teaching and with the job their junior colleges had done to prepare them for further education. They seemed to be less satisfied with the quality of the social life. Yet, overall, students found their junior college experience enjoyable.

Studies of Occupational Curriculum Students

Follow-up studies of junior college students in vocational and technical programs are fairly numerous and provide useful information about the effectiveness of such programs. They reveal, in addition, certain persistent problems associated with the occupational training of junior college students which confront curriculum planners and students alike. One of these concerns the so-called "track system" of curricular programing by which students follow rather distinct course sequences. Many junior colleges which use a track system offer programs which, in effect, present the student with a choice between more difficult courses that are readily accepted for credit upon transfer to four-year colleges and less difficult courses that may not transfer unless the student does exceptionally well.

By contrast, other colleges do not permit the student a choice but, instead, place him in the upper or lower program track, depending on his standing on various indices of ability and achievement. Frequently, students have strong transfer aspirations, yet are considered by their respective colleges to be enrolled in the lower track or "terminal-occupational" program. Many comprehensive studies of junior college students have lumped together and treated as a homogeneous group both these arbitrarily classified "terminal-occupational" students and those, who by personal choice, are enrolled in occupational programs. From the sample descriptions of some major studies, it is hard to determine when this is being done. Since students with transfer aspirations but with arbitrarily assigned "terminal" status will, in all probability, be somewhat less satisfied with the college experience than others in the occupational programs, the meaningful interpretation of data from studies grouping students in this manner becomes difficult, if not impossible.

Several studies are available, however, that follow up students who completed specific vocational-technical programs. It may generally be assumed that the presence of students in such programs is not spurious or capricious. The findings derived from several recent studies of this type are briefly reported below.

Davidson (1968) followed up thirty-six graduates of the Agricultural and Technical College at Cobbleskill, New York to determine whether they had attained their goals. Approximately 40 per cent said their initial intent had been to continue their education at the four-year level. In actuality, 20 per cent had continued their formal education at four-year institutions and had been awarded a degree at the baccalaureate level or above. The bulk of the graduates reported that their initial employment and current employment were either directly or indirectly related to their major field of preparation. They further stated that, if they were to begin again, they would still attend a junior college and still major in the same area of study. In general, their employers rated them average or somewhat above average on all job performance characteristics except leadership.

Another study conducted by Brandywine College (Devilbiss, 1969) also provided employer reactions to the graduates of vocational-technical programs. This report indicated that 80 per cent of the employers contacted judged graduates' performance on the job to be either "exceptional" or "good", and 90 per cent thought the vocational-technical graduates they employed had been adequately prepared for their positions.

Several institutions have released studies containing information about salaries earned by their former students (Eastern New Mexico, 1969; Hazard, 1968; Ochs, 1969; Quint, 1969; Snyder & Blocker, 1969; U. S. Office of Education, 1969). The results are consistent on several points, regardless of regional differences in salaries and cost of living. Graduates who gained employment in the field for which they were trained earned higher monthly salaries than those who were employed outside their field of preparation. Former students taking jobs outside the state in which they were trained acquired higher paying positions than those who remained in or near the area in which their school was located. The study by Quint also indicated that salaries earned by vocational-technical program graduates may be related to age. In general, younger graduates tended to earn lower starting salaries than did older graduates. A study conducted by Wisconsin's District 11 Area Board of Vocational, Technical and Adult Education (U. S. Office, 1969) reported that the salaries earned by students who graduated and obtained employment within their field of training were higher than for students failing to complete programs. However, the same finding did not hold true for students enrolled in less-than-two-year degree programs. Salaries of these students seemed to be the same whether or not they completed a program or accepted employment in occupations related to their training.

Gartland and Carmody (1970) found that approximately 80 per cent of students completing vocational-technical programs were able to secure jobs closely related to their training. Additionally, the unemployment rate for vocational-technical graduates was significantly lower than the national unemployment rate.

Thus, follow-up studies of vocational-technical graduates of junior colleges have yielded findings which are, in the main, favorable. Taken as a group, these students have a high rate of completion of their programs and give a generally positive evaluation of their junior college experience. They report considerable success in finding employment following graduation and, in the majority of instances, their work is closely related to their fields of junior college preparation. Employers assert that they are generally well satisfied with the job performance of the junior college vocational-technical graduates they hire.

Several other studies have dealt with the terminal, i.e., non-transfer-bound student, who may or may not be enrolled in a specific occupational program. Shay (1966), in his study of New York public two-year colleges, traced the academic careers of students who transferred to four-year colleges after having completed a two-year terminal program. He found that more terminal students than students who had come from transfer-oriented programs were successful in earning the baccalaureate degree. Among the latter group were many students who had transferred to four-year colleges after varying amounts of time in junior college. Two years after transfer, the proportion of terminal-student matriculants who had earned a B. A. degree was 60 per cent as large as the proportion among junior college students who transferred with junior year or near-junior year standing. Four years after transfer, 73 per cent of the terminal-student transfers had graduated.

Baird, Richards, and Shevel (1969), in their comprehensive study of two-year college graduates, surveyed students who planned to obtain a full-time job after graduation. Nearly a quarter of the students stated that they had been trained for a specific job which had now been offered them in their local area; another 16 per cent claimed they were trained for a specific job for which they had not yet made application, and nearly 30 per cent felt they had received general training for employment. While a third had already been hired by firms, another third had not yet begun to look for work. Most students who planned to take full-time jobs after graduation felt that their college had prepared them for the work they would do either "fairly well" or "very well". However, 10.5 per cent felt their job preparation had been poor.

Thus, even studies dealing with the vocationally ill-defined terminal students show these students to be fairly well satisfied with their junior college experience. The finding that a large percentage of the terminal (non-transfer-bound) students who later transfer are ultimately successful in attaining the B. A. degree implies that a review of the objectives and effectiveness of the "track" system may be in order.

Studies of Withdrawal Students

Several studies of junior college withdrawal students are also available. Bossen (1968), in an attempt to learn why students left Foothills Junior College (California) during the semester, interviewed fifty students matched for academic aptitude but randomly selected from groups of withdrawals and persisters. For a majority of the withdrawals, personal, social, and academic factors were all represented in their reasons for leaving college. Almost half of the withdrawal group later returned to a junior college. This finding led Bossen to suggest that the final attrition rate in the junior colleges is not as high as original estimates.

A statistical comparison of the sub-groups in Bossen's sample provides a profile of the "typical" junior college withdrawal student. He is married, his father is unskilled, and neither parent has attended college. He made his decision to attend college in high school, and he is undecided about his educational and vocational goals. He views the faculty and his counselor unfavorably. Although he carries a light academic load, he is not employed. Personal characteristics such as age, sex, and participation in extra-curricular activities do not appear to differentiate the withdrawal student from the persisting student in Bossen's research.

Schultz (1969) studied the impact of academic probation and suspension practices on junior college students. His sample consisted of 483 students from twenty-seven institutions whose policies in dealing with probation and suspension were evenly distributed from highly restrictive to liberal. Schultz's results disclosed that males, much more often than females, experienced academic difficulty severe enough to place them on probation or suspension. Also, since 82 per cent of those on probation or under suspension were under 22 years of age, the investigator concluded that older students (those above the common age-range for junior college undergraduates) perform better academically than typical college-age classmates. Further results showed that institutions with highly restrictive regulations appeared to have no greater success (measured as the number of semester hours completed) in motivating students who were subjected to their regulations than did institutions with less severe requirements. Finally, over 51 per cent of students who returned following probation failed to meet their probation requirements during the initial period of subsequent attendance. Fewer than 10 per cent of those students who had been placed on probation graduated from junior colleges within a five-year period.

Studies at Harrisburg Area Community College (Snyder and Blocker, 1970) and Arizona Western College (Mitchell & Moorehead, 1968) dealt with the reasons which vocational-technical students presented for dropping out before completion of their programs. Prominent among these explanations were attendance at another college, volunteering or being drafted for the Armed Forces, obtaining employment, or completing objectives short of graduation. According to Gartland and Carmody (1970), and perhaps surprisingly, relatively few vocational-technical students withdraw due to dissatisfaction with their school or to lack of progress in their program. From their findings these authors suggest that most students who withdraw from vocational-technical programs have neutral or even positive reasons for doing so. Thus, they contend it would not be appropriate to judge the success or effectiveness of an institution solely on the basis of the program completion rates achieved by its students.

Medsker (1960) feels many of the reasons for high attrition rates among transfer students are also positive. Several possible explanations may account for his finding that only a third of those entering public two-year colleges and slightly fewer than three-fifths of those entering private junior colleges were graduated. One is that many entering students possess short-term personal or vocational goals which can be met in less than two years and without completing graduation requirements. Another relates to the practice by which some students transfer to senior college before finishing two years in their junior colleges. Thirdly, a sizeable number of junior college students may complete two years, decide not to satisfy the graduation requirements, but still enter a four-year institution.

Follow-up studies of students who withdraw from junior college leave several important questions unanswered. Assuming that answers will be supplied by future research, several implications would then follow for the re-examination and modification of junior college policies and practices in the realms of admissions, curriculum, and counseling. Meanwhile, a number of pertinent issues remain to be investigated through systematic research. What, for example, expanding the area investigated by Bossen (1968), are the background variables and personal characteristics of junior college students who fail to complete programs or earn two-year degrees? What are the environmental characteristics of two-year institutions with high student attrition rates? Do students at community colleges offering great diversity in their transfer and occupational programs have lower rates of attrition and do their withdrawal students have more positive reasons for withdrawing? Does the policy of assigning students to curriculum tracks lead to higher rates of attrition? These are among the questions which deserve attention when the establishment of new two-year colleges is contemplated and when the revamping of programs at existing two-year colleges is under serious review.

NOTE: A number of additonal references, mostly published since 1971 and bearing on the interconnected themes with which the foregoing literature review deals, will be found at the end of the References section, beginning on page 290. These sources are briefly annotated and will serve to update and extend the treatment of issues pertinent to the college decisions, career aspirations, and educational career patterns of community college students.

CHAPTER 3

Sampling Procedures

The procedure by which the student sample used in this study was selected was an intricate one. It would, indeed, be more appropriate to speak of samples, since different aspects of the analysis required that different samples be drawn. Moreover, inevitable attrition, owing to missing or unusable data, caused some samples to be redefined. The principal sampling procedure involved the selection of 24 colleges from a larger group of 100 colleges employed in a previous study (Hendrix, 1967). Thus, this description of the sample selection procedures for the current study begins with a summary of the method by which the original set of 100 colleges was selected. Fuller details of that sampling operation are to be found in the final report of the original study, cited above.

BASE SAMPLE OF 100 COLLEGES

Each of the 396 public junior colleges in operation in the continental United States since 1962 was classified on seven variables: size of enrollment, national geographic region, part-time-to-full-time student ratio, major curriculum (occupational, transfer, or both), source of accreditation, evening program option, and availability of boarding facilities. The two major variables were geographic location and student body size. The United States was divided into six geographic regions. (See Table 10) Regions were selected so that (1) no single state dominated a region in number of colleges (primarily for this reason California was made a separate region), (2) the colleges were fairly evenly distributed among the regions, and (3) certain important geographic and economic similarities were found within all regions.

Schools within each region were divided into two enrollment size groups, based on the national enrollment median. The national enrollment median was determined by using the October 1963 enrollment figures for all public colleges, as published in the 1964 Junior College Directory.

TABLE 10

Distribution of States Within Six Regions

REGION	STATES		
I	Maine New Hampshire Vermont	Massachusetts Connecticut Rhode Island	Pennsylvania New Jersey New York
II	Delaware Maryland Virginia West Virginia	North Carolina South Carolina Georgia Florida	Alabama Kentucky Tennessee
III	Minnesota Iowa Michigan	Wisconsin Illinois Indiana	Ohio
IV	Washington Oregon Montana	Idaho Wyoming North Dakota	South Dakota Nebraska
V	Arizona New Mexico Nevada Utah	Colorado Kansas Texas Oklahoma	Missouri Arkansas Louisiana Mississippi
VI	California	-	-

Within the twelve cells thus formed (6 regions X 2 enrollment categories), the colleges were classified on the five minor variables (source of accreditation, presence or absence of boarding facilities, presence or absence of evening class program, type of curriculum offered, and ratio of part-time to full-time students). The actual and theoretical (predicted) distributions of colleges by percentages on all seven variables is presented in Table 11.

The actual sample of colleges used in the previous study was drawn according to the following procedure. (1) The states within each cell were arranged alphabetically; junior colleges within each state were then arranged alphabetically. (2) Within each cell, every fourth college was chosen for the working sample. (3) Within the working sample for each cell, the frequency of each of the five minor variables (see above) was tabulated and comparison made to the theoretical distribution for the sample. Any disparity was corrected by replacing one of the colleges in the working sample with one from those remaining in the cell which permitted a closer match to the theoretical distribution. The necessary changes were made with as few replacements as possible. (4) Simultaneously, schools with fewer than 200 students were replaced since that figure was deemed to be the minimum frequency necessary to undertake meaningful analysis of data involving a considerable number of student-related variables. (5) In instances in which it was impossible to match the theoretical distribution precisely, schools were chosen which allowed discrepancy in the fewest categories.

The colleges chosen by the procedures described above composed the initial group of institutions which were invited to participate in the study. To replace colleges which rejected the invitation, the investigators chose a second group of schools. This was done by studying the characteristics of each school, in turn, within a given cell. Any college possessing the characteristics necessary to fill out the theoretical sample was selected for the actual sample. The process was continued until the required number of colleges was attained. A third invitation was needed to complete the sample. The same procedure was followed, beginning with the first college

TABLE 11

Comparison of Actual and Theoretical Samples of 100 Colleges

STRATIFICATION VARIABLES	ACTUAL SAMPLE	THEORETICAL SAMPLE	X^2
1. Enrollment (df=1)			.160
Above median	48	50	
Below median	52	50	
2. Regions (df=5)			2.598
I	11	13	
II	11	16	
III	22	20	
IV	10	9	
V	28	25	
VI	18	17	
3. Part-time/full-time ratio (df=2)			2.724
0.0 - .49	52	48	
.5 -1.99	36	38	
2.00	12	14	
4. Curriculum (df=2)			6.122*
Occupational and Transfer	89	79	
Transfer Only	8	14	
Occupational Only	3	7	
5. Accreditation (df=1)			.395
Regional	68	65	
State only	32	35	
6. Evening Program (df=1)			5.004*
Yes	96	89	
No	4	11	
7. Boarding Facilities (df=1)			5.072*
Yes	37	27	
No	63	73	

*Significant at .05 level

within each cell beyond which the second selection had ended; i.e., the college next following the last one selected for the second invitation list. Based on experience with the previous rejection rate for the particular cell, more colleges were invited than were needed to insure that the final (third) invitation would yield the full complement of 100 institutions approximating the specifications of the theoretical distribution.

To determine the representativeness of the actual sample, a chi square "goodness of fit" test was run on that sample against a theoretical sample of the same size. (See Table 11) In general, the sample derived by the procedures described here conformed quite closely to the theoretical sample. Discrepancies significant at the five per cent level of confidence, but not at the one per cent level, were found for the type of curriculum, evening program, and boarding facilities variables. A larger proportion of the actual sample than theoretical sample offered both occupational and transfer curricula (as opposed to transfer or occupational curriculum only). A greater proportion of colleges in the actual sample, as compared with the theoretical sample, had boarding facilities for students and offered evening programs.

These differences occurred on minor stratification variables that were least likely to influence the environment. As concerns the evening program and curriculum variables, the differences reflected trends that have been observed in the development of the community college. A greater proportion of such colleges now tend to have evening programs and comprehensive curricula. Although the investigators had no evidence of a similar trend with regard to boarding facilities, it is not unlikely that a rising proportion of public junior colleges have established boarding facilities and will continue to do so in the future. This phenomenon occurs primarily in regions which are not heavily populated but which have developed state-wide plans for community colleges. Arizona, California (excluding the San Francisco and Los Angeles areas), Texas, Michigan, and New York are examples.

CURRENT SAMPLE OF 24 COLLEGES

Table 12 identifies the eight subcategories for the sample of 24 colleges (3 in each subcategory) used in this study. Four of the cells include colleges, three per cell, which fall above the median (computed for the 100 base sample colleges) in the percentage of students enrolled in occupational programs. The twelve colleges assigned to the remaining four cells fall below the median in the percentages of their students in occupational programs. "Occupational achievement" is defined as the number of students completing an occupational program at a college, this number expressed as a percentage of all those enrolled in occupational programs at the college. Enrollments were reported by college administrators as part of the data in the 1967 study and were based on college records as of September, 1965. The administrators additionally reported the numbers of students completing occupational programs at their colleges during the 1965-1966 academic year. The resultant ratio of students completing occupational programs to students enrolled in occupational programs is thus used as an "occupational achievement index" and yields the lateral categorization indicated in Table 12.

"Occupational program overachievement" and "occupational program underachievement" are defined in terms of a comparison of the actual occupational achievement index for a college with its "predicted" achievement (in the regression sense). A regression analysis was conducted for the 100 base sample colleges by using the achievement index as the criterion and 54 variables from the earlier study as predictors. The predictors consisted of 24 factor scores derived by principal component analysis with varimax rotation from 72 raw community variables. Thirty factor scores, derived by the same procedure from 300 items in the Junior College Environment Scales (JCES), completed the prediction battery. In the earlier study the 24 community variable factors were eventually condensed into 13 community variables. The process by which this is done is described in detail in the report of that study. (Hendrix, 1967)

TABLE 12

Subcategories of 24-College Sample

(3 colleges in each cell)

	ABOVE THE MEDIAN IN PERCENTAGE OF STUDENT BODY IN OCCUPATIONAL PROGRAMS		BELOW THE MEDIAN IN PERCENTAGE OF STUDENT BODY IN OCCUPATIONAL PROGRAMS	
Residual Achievement	Above the Median in Expected Occupational Achievement*	Below the Median in Expected Occupational Achievement	Above the Median in Expected Occupational Achievement	Below the Median in Expected Occupational Achievement
Top half in occupational program overachievement**	1	2	3	4
Bottom half in occupational program underachievement**	5	6	7	8

* Occupational achievement is defined as the number of students completing an occupational program at a college, this number expressed as a percentage of all those enrolled in occupational programs at the college.

** Occupational program overachievement and occupational program underachievement are defined in terms of a comparison of the actual occupational achievement index for a college with its predicted achievement.

The resulting 13 community variables are used in the present study. Descriptions of these variables will be found in the next chapter, Instruments and Variables for Analysis. The 30 JCES factor scores were eventually condensed into four Junior College Environment Scales scores. Again, the process is described in the earlier study. (Hendrix, 1967) The scales themselves are among the more important variables used in the current study and are described in the following chapter.

It would have been conceptually appropriate to confine the prediction battery involved in the selection of the colleges used in this investigation to the 13 community variables and four environmental scales developed in the earlier study. This was not possible since the time schedules for the earlier study and the current one involved a two-year overlap. It was necessary to select the final sample of 24 colleges so that student testing and related data collection could occur in the fall of 1966. The finalization of variables for the previous study was not accomplished until the early spring of 1967. The adoption of a modified sample selection procedure, however, very likely made little, if any, difference in the results since the meaning of the predictors was not important. On the other hand, the extent to which variance in the criterion (occupational achievement index) was accounted for was important, and the use of the orthogonal factor scores undoubtedly allowed this condition to be met with greater efficiency.

The regression analyses were conducted on the complete original sample of 100 colleges. Thus, for each of the original colleges, three items of information were available:

(1) The per cent of students enrolled in occupational programs

(2) The per cent of students enrolled in occupational programs who would be expected (predicted by regression analysis) to complete programs

(3) The difference or residual obtained by subtracting from the actual percentage of occupational students completing programs the predicted percentage of students completing occupational programs. This procedure yielded an index of occupational program overachievement and underachievement.

Next, the fourteen colleges having only transfer programs were eliminated. They were retained for the regression analysis only so that the figures used for sample selection would still relate to the original base sample of 100 public junior colleges. The step-by-step process resulting in the identification of the 24 colleges selected for study in the current investigation is described below.

Several months prior to the selection of the actual sample, a preliminary invitation was extended to the 86 colleges in the base sample offering an occupational program. From these, 53 affirmative replies were received. The final selection of colleges was based on their rating on three previously described variables. (See above) The first and most important variable was residual achievement (differences between percentage of occupational students predicted to complete their programs and the percentage actually completing such programs). The second variable, actual achievement, was defined as the ratio of students completing occupational programs during the academic year 1964-65 to the total enrollment in occupational programs in the fall of 1964. The third variable was the percentage of occupational program students enrolled at the college.

Colleges were first classified as occupational program overachievers or occupational program underachievers (determined by residual achievement ranking) and then further sorted into subcategories according to whether their predicted achievement placed them above or below the median of the predicted achievements. The extreme values and medians are indicated in Table 13.

The colleges were first divided into occupational program overachievers and underachievers and medians determined, 0.0942 and -0.2025 respectively. Next, all colleges which had either rejected the preliminary invitation or failed to reply to it were stricken from the list, leaving only those which had accepted the invitation to participate in the study. Of these colleges only those above the median (in absolute value) as occupational program overachievers and underachievers were retained for final classification on the other two variables and possible inclusion in the sample. For simplicity, the eight categories were assigned cell numbers as indicated in Table 12.

TABLE 13

Median and Extreme Values for Variables Used in Classification of Colleges*

VARIABLE	VALUES		
	High	Low	Median
Residual Achievement (Overachievers)	1.638	0.029	0.0942
Residual Achievement (Underachievers)	-0.0156	-0.5057	-0.2025
Predicted Achievement	1.2421	-0.2738	0.2834
Percentage of Students in Occupational Programs	100	0.0	17.25

*Based on 100-College Sample

Following the elimination of the below-median colleges on the residual achievement variable, 26 institutions remained. These were not evenly distributed among the eight cells designated in Table 12. The distribution of colleges was as follows: Cells 1, 2, and 7 each had three colleges which were retained for the sample. Cell 3 included four colleges; these were ranked separately on each of the three variables and the college with the lowest total rank number on all three variables was eliminated. Cells 4 and 5 held five and seven colleges, respectively. The method of selection was the same as that for Cell 3.*

Cells 6 and 8 presented somewhat more difficult problems than simple elimination of the least desirable colleges. Cell 6 included only one school after the initial classification. After careful consideration it was decided that the least disruptive course of action to follow was to appropriate two of the colleges from Cell 5 which had been eliminated, the logic for this decision resting on the fact that both colleges had satisfied the criteria of enrollment and underachievement, leaving only the predicted achievement variable unfulfilled. However, the difference between the predicted achievement median and the values for the two lowest colleges thus selected was not as great as the difference would have been for other colleges on the other two variables (0.3192 and 0.3146, with the median at 0.2834). Also, a respectable separation still remained between the values for predicted achievement of Cells 5 and 6. Thus, the method devised to fill out Cell 6, as described here, produced a reasonably good fit.

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* After the selection for Cell 5 had been made it was learned that the college which was third most desirable in that cell had decided not to participate in the study. The values for the school thus eliminated were: Residual Achievement: = -0.3456, Predicted Achievement: = 0.3914 and Enrollment: = 31.4 per cent. Another school in Cell 5 was substituted for use in the final sample, and the values of that school were Residual Achievement: = -0.3387, Predicted Achievement: = 0.3387 and Enrollment: = 31.1 per cent.

Cell 8 at final classification included only two colleges. In order to attain the necessary sample size for that cell (three colleges), a college from below the occupational program underachievement median had to be used. This choice was unavoidable since there were no colleges to be borrowed from other cells which would comply with the underachievement variable and still meet the conditions of at least one of the two remaining variables. Tables 14a and 14b present a complete listing of the values for the three variables of the final sample of 24 colleges.

A complete list of the final set of 24 public junior colleges, selected by the methods described above as the target sample of the present investigation, is presented in Table 15.

Owing to the limiting conditions identified in the foregoing discussion, the attainment of an ideal sample was not possible. Examination of Tables 13 and 14, however, will indicate that the principal aims of the planned college sample selection procedure were achieved. The final sample chosen for analysis includes colleges with large and small proportions of students in occupational programs, colleges in which larger and smaller proportions of occupational students would be expected to complete programs (based on relationships with community characteristics and junior college environments), and colleges in which greater-than-expected and lesser-than-expected proportions of students in occupational programs actually complete these programs (occupational program over- and under-achievement). Within the constraints set by the data and the willingness of the colleges to participate in the study, the investigators believe that the best possible sample was selected.

Generalizability of Data from 24-College Current Sample

As the study progressed, it became apparent that valuable descriptive information, available from no other source, was being provided. No other study was known to the investigators in which a variety of comprehensive background and environmental variables, plus curriculum program and follow-up variables, had been collected for such a large national sample of junior college students. In particular, no studies are known which permit

TABLE 14a

Categorization and Computed Values for 12 Colleges on Occupational Program Enrollment, Residual and Predicted Achievement, and Occupational Program Over- and Under-Achievement

(for Colleges Above the Median in Occupational Enrollments)

	ABOVE PREDICTED MEDIAN				BELOW PREDICTED MEDIAN			
	School No.*	Residual Achievement**	Predicted Achievement***	Enrollment****	School No.*	Residual Achievement**	Predicted Achievement***	Enrollment****
Top Half of Overachievers	11	0.2699	0.6450	20.4	3	0.4058	0.0538	18.8
	13	1.6380	1.0038	25.3	2	0.1566	0.1828	23.3
	17	0.3446	1.2421	48.5	19	0.6613	-0.2738	27.3
Bottom Half of Underachievers	20	-0.3184	0.4657	54.4	5	-0.2920	0.3192	40.0
	23	-0.5057	0.8430	50.0	9	-0.2201	0.2456	70.1
	12	-0.3387	0.3387	31.1	16	-0.3146	0.3146	29.8

* For school name, see Table 15

** Residual Achievement (actual achievement minus predicted achievement)

*** Predicted ratio of 1964-1965 occupational graduates to fall 1964 occupational program enrollees

**** Per cent of students in occupational programs

TABLE 14b

Categorization and Computed Values for 12 Colleges on Occupational Program Enrollment, Residual and Predicted Achievement, and Occupational Program Over- and Under-Achievement

(for Colleges Below the Median in Occupational Enrollments)

	ABOVE PREDICTED MEDIAN				BELOW PREDICTED MEDIAN			
	School No.*	Residual Achievement**	Predicted Achievement***	Enrollment****	School No.*	Residual Achievement**	Predicted Achievement***	Enrollment****
Top Half of Overachievers	8	0.5012	0.8988	7.6	1	0.1558	0.5560	7.3
	21	0.3828	0.6172	6.4	15	0.7345	-0.1191	3.5
	22	1.0144	0.9855	7.5	24	0.4090	-0.0129	15.7
Bottom Half of Underachievers	7	-0.4942	0.5844	9.3	4	-0.2244	0.2819	7.2
	10	-0.2683	0.7383	16.5	6	-0.0609	0.2109	11.8
	18	-0.3146	0.4911	15.1	14	-0.2036	0.2211	12.2

* For school name, see Table 15

** Residual Achievement (actual achievement minus predicted achievement)

*** Predicted ratio of 1964-1965 occupational graduates to fall 1964 occupational program enrollees

**** Per cent of students in occupational programs

TABLE 15

List of 24 Junior Colleges
Comprising Institutional Sample for this Study

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1. Barstow College (California)
2. Porterville College (California)
3. Northeastern Junior College (Colorado)
4. Indian River Junior College (Florida)
5. Danville Junior College (Illinois)
6. Highland Community College (Illinois)
7. Mt. Vernon Community College (Illinois)
8. Thornton Junior College (Illinois)
9. Vincennes University (Indiana)
10. Iowa Central Community College (Iowa)
11. Marshalltown Community College (Iowa)
12. Greenfield Community College (Massachusetts)
13. Delta College (Michigan)
14. Macomb County Community College (Michigan)
15. Mesabi State Junior College (Minnesota)
16. Metropolitan Junior College (Kansas City, Missouri)
17. New York State University Agricultural & Technical Institute (Canton, New York)
18. Orange County Community College (New York)
19. Northern Oklahoma Junior College (Oklahoma)
20. Clatsop College (Oregon)
21. Meridian Junior College (Mississippi)
22. Temple Junior College (Texas)
23. Virginia Western Community College (Virginia)
24. Centralia College (Washington)

similarly detailed comparisons of students enrolled in two-year occupational versus transfer programs. Consequently, it became important to look at the 24-college sample from a fresh perspective. In light of the special selection procedures employed, was the final sample of 24 colleges representative of the original base sample of 100 colleges? If so, selected descriptive information obtained on the final sample could be generalized with a high degree of confidence to public junior colleges provided, of course, that the original sample of 100 colleges was itself representative of these institutions. To test the accuracy of this assumption, the final sample of 24 colleges was compared with the original theoretical population based upon the seven stratification variables used in the previous study. (Hendrix, 1967) Table 16 reveals that the sample of 24 colleges does not differ significantly on any of the seven stratification variables from the theoretical population. No differences exceeding the .10 level of confidence were found.

Next, it was thought desirable to compare the 24 colleges in the current sample with the 76 colleges of the base sample not used in the present study. The major variables chosen for the comparison were drawn from the 1967 report and included the 13 community characteristics, two scales indicating faculty preferences for college environmental characteristics, two scales indicating student preferences for college environmental characteristics, and the four Junior College Environment Scales. All of these variables are described in the next chapter of this report, Instruments and Variables for Analysis. For purposes of this comparison the colleges were sorted into a trichotomy on each variable. The three categories of each trichotomy consisted, respectively, of those colleges with scores one standard deviation or more below the mean for the base sample of 100 colleges, those colleges one standard deviation or more above the 100-college mean, and those colleges with scores within one standard deviation (plus or minus) of the 100-college mean. This classification scheme was applied both to the sample of 24 colleges and the unselected group of 76 colleges and chi squares were computed to ascertain differences between the two groups. The only variable

TABLE 16

Chi-Square Goodness-of-Fit Comparisons of Current 24-College Sample With Cooperative Research Project #2849* Theoretical Population On Seven Stratification Variables

STRATIFICATION VARIABLE	CATEGORY	FREQUENCIES Theoretical	FREQUENCIES Actual	CHI-SQUARE**
Enrollment	Above median	50	10	$X^2(df=1)=0.74$
	Below median	50	14	$.5 > P > .3$
Regions	I	13	3	$X^2(df=5)=7.75$
	II	16	2	$.2 > P > .1$
	III	20	10	
	IV	9	2	
	V	25	5	
	VI	17	2	
Part-Time/Full-Time Ratio	$< .49$	48	13	$X^2(df=2)=0.74$
	.5 - 1.99	38	9	$.5 > P > .3$
	> 2.00	14	2	
Curricula***	Transfer and Occupational	79	23	$X^2(df=1)=.50$
	Occupational Only	7	1	$.5 > P > .3$
Accreditation	Regional	65	15	$X^2(df=1)=.06$
	State	35	9	$.9 > P > .7$
Evening Program	Yes	89	23	$X^2(df=1)=1.15$
	No	11	1	$.3 > P > .2$
Boarding	Yes	41	8	$X^2(df=1)=0.49$
	No	59	16	$.5 > P > .3$

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* Cooperative Research Project #2849* (See Hendrix, 1967)

** Probability values (second row of right-hand column for each stratification variable) refer to levels of confidence associated with the corresponding X^2.

*** Since the 24-college sample included no colleges with transfer programs only, the 14 colleges in the Cooperative Research Project (theoretical) sample having transfer programs only were eliminated from the analysis. Hence, the theoretical frequencies for the curriculum variable do not sum to 100, as for the other stratification variables.

for which this classification was not possible was community characteristic C13, a highly skewed variable which produced no colleges one standard deviation or more below the mean. The contingency table for this particular variable had only one degree of freedom.

The results of the analysis are summarized in Table 17. As indicated, the sample of 24 colleges and the unselected group of 76 colleges differed on only two variables. One of these differences occurs for community characteristic C4, an index of the marital status of the college district. High scores on this variable denote a greater-than-average percentage of married individuals in the district. None of the institutions in the 24-college sample scored below -1 standard deviation on this variable whereas none of the 76 colleges in the unselected group scored higher than +1 standard deviation on this variable. The other difference applied to the second JCES variable, Internalization. None of the 24 colleges recorded scores on this scale equal to or greater than 1 standard deviation above the mean for the original sample of 100 colleges. It will be shown in later sections of the report that the Internalization scale is statistically related to a number of the intermediate and final criterion variables employed in this study. Thus, it may be that this difference between the two groups was introduced by the sampling procedure used in selecting the 24 colleges. Apart from the two group differences reported here, the 24-college sample chosen for the current study can be considered to be representative of the original base group of 100 colleges. Thus, generalizations from the characteristics of students used in this investigation to those of students in the larger national population of public junior colleges seems permissible.

Selection of Student Sample for Current Study (24 Colleges)

During the fall of 1966 staff members from the project office visited each of the 24 selected junior colleges to administer the test battery. These site visits occurred in October and the first two weeks of November. In all cases of student testing, at least one project staff member was present, and at some of the larger colleges as many as six staff members were present. Pro-

TABLE 17

Comparison of Current 24-College Sample and 76 Nonselected Colleges* on Major District Variables

	VARIABLE	SAMPLE OF 24 JUNIOR COLLEGES			76 NONSELECTED JUNIOR COLLEGES			X^2	df
		< -1σ	> -1σ <+1σ	> +1σ	< -1σ	> -1σ <+1σ	> +1σ		
C 1	Class	2	19	3	12	54	10	0.89	2
C 2	Higher Education	1	22	1	9	58	9	2.69	2
C 3	Mobility	3	20	1	11	55	10	1.68	2
C 4	Marital Status	0	21	3	3	73	0	10.59***	2
C 5	Economic, Racial Discrimination	1	21	2	6	58	12	1.38	2
C 6	Unionization	1	19	4	13	52	11	2.54	2
C 7	Housing Imbalance	2	22	1	11	51	14	4.05	2
C 8	Young Families	3	19	2	12	49	15	2.11	2
C 9	Suburban Areas	1	22	1	5	62	9	1.47	2
C 10	Large Farms	3	19	2	10	58	8	.11	2
C 11	Consumption	3	19	2	11	55	10	.52	2
C 12	Income	2	20	2	14	51	11	2.37	2
C 13	Urbanization	0	23	1	0	72	4	.10	1
F 1	Students	4	14	6	18	48	10	2.08	2
F 2	Liberal Arts	3	16	5	8	60	8	1.91	2
S 1	Scholarship	4	18	2	8	61	7	.65	2
S 2	Sociability	5	16	3	15	46	15	.65	2
E 1	Conformity	1	18	5	13	52	11	2.75	2
E 2	Internalization	6	18	0	11	50	15	6.15**	2
E 3	Maturation	1	18	5	12	51	13	2.20	2
E 4	Humanism	1	21	2	7	56	13	1.97	2

* From Cooperative Research Project #2849 (See Hendrix, 1967)

** Significant at .05 level *** Significant at .01 level the administration of the tests in some of the larger colleges. For example, at one of the larger colleges where over one thousand students were tested, the test directions and timing were administered by means of close-circuit television. The students were assembled in several large lecture halls where they were monitored by staff members.

In the smaller colleges it was intended that the entire incoming, full-time freshman class be tested. In the larger colleges this was not attempted. Instead, sufficient numbers of students were tested to allow the expectation that a minimum of 250 students would be enrolled in occupational programs, based on the results which the 1967 study yielded for that college. Table 18a presents the basic sampling data for students at each of the 24 colleges. Subtotals are provided for the eight cells, as discussed earlier in the sampling procedure for colleges, and a grand total for the entire sample is given. Column 1 of Table 18a indicates the reported number of freshmen in the fall 1966 semester or quarter (Directory, American Association of Junior Colleges, 1967). Column 2 shows the number of students tested. Column 3 expresses the number of students tested as a per cent of the total number of new, full-time freshmen. Column 4 indicates the number of usable Junior College Student Inventory (JCSI) forms. Column 5 represents the salvaged JCSI forms as a percentage of the number tested at the college. Column 6 discloses the number of students for which final follow-up information was obtained. Column 7 represents the number for which final follow-up information was obtained as a percentage of the original number tested. Column 8 indicates the number of students for which usable JCSI forms and final follow-up information were both available. Column 9 expresses this number for which complete information is available as a percentage of the original number of students tested.

The only serious attrition occurred for college number 24, where the final follow-up information was eventually discarded owing to a high error rate discovered during computer editing procedures. This attrition did not significantly affect the study since this was a relatively small college. Furthermore,

TABLE 18a

Descriptive Student Sampling Data for 24-College Sample

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cell 1 Colleges	11	717	457	64	433	95	457	100	433	95
	13	2385	925	39	714	77	913	99	699	76
	17	586	533	91	533	100	533	100	533	100
	Total	3688	1915	52	1680	88	1903	99	1665	87
Cell 2 Colls.	3	984	605	62	396	65	527	87	394	65
	2	339	252	74	252	100	251	100	251	100
	19	661	392	51	369	94	390	99	366	93
	Total	1984	1249	63	1017	81	1168	94	1011	81
Cell 3 Colls.	8	842	686	82	656	96	677	99	655	96
	21	538	295	55	295	100	294	100	294	100
	22	707	339	48	322	95	336	99	318	94
	Total	2087	1320	63	1273	96	1307	99	1267	96
Cell 4 Colls.	1	198	108	55	103	95	87	81	83	77
	15	447	257	58	152	59	255	99	152	59
	24	692	259	38	239	92	0	0	0	0
	Total	1337	624	47	494	79	342	55	235	38
Cell 5 Colls.	20	362	185	51	176	95	178	96	176	95
	23	608	378	62	353	93	376	99	351	93
	12	361	244	68	237	97	241	99	232	95
	Total	1331	807	61	766	95	795	99	759	94
Cell 6 Colls.	5	557	462	83	373	81	457	99	369	80
	9	1299	905	70	838	93	864	95	836	92
	16	1378	748	54	709	95	740	99	699	93
	Total	3234	2115	66	1920	91	2061	97	1904	90
Cell 7 Colls.	7	434	316	73	289	91	298	94	288	91
	10	737	434	59	286	66	403	93	286	66
	18	945	376	40	368	98	374	99	366	97
	Total	2116	1126	53	943	84	1075	95	940	83

Interpretation of Column Headings

(1) Full-time freshmen, 1966

(2) Number tested

(3) Per cent tested

(4) Usable JCSI

(5) Usable JCSI as per cent tested

(6) Final follow-up number

(7) Final follow-up as per cent tested

(8) Students with complete data (JCSI and Final follow-up)

(9) Students with complete data as per cent tested

* For explanation of cells and categorization of colleges by cells, see Tables 12, 13, 14a, and 14b.

TABLE 18a (continued)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cell 8 Colls.	4	537	315	59	309	98	311	99	307	97
	6	348	191	55	187	98	191	100	186	97
	14	2679	1195	45	1021	85	1030	86	1020	85
	Total	3564	1701	48	1517	89	1532	90	1513	89
Grand Total		19341	10857	56	9610	89	10183	94	9294	86

the data gathered for this college were used for all aspects of the analysis which were confined to the Junior College Student Inventory.

As noted above with reference to the date presented in Table 18a, the total number of usable JCSI forms which were returned by the participating colleges was 9610. This was the basic student sample for the overall study. The distribution of the 9610 subjects by sex and curriculum program on initial enrollment is given in Table 18b.

TABLE 18b

Frequency Distribution of Total Student Sample in Current Study Classified by Sex and Program

	PROGRAM			
	Occupational	Transfer	Undecided	Totals
Male	3563	1426	827	5816
Female	1832	1419	543	3794
Totals	5395	2845	1370	9610

CHAPTER 4

Instruments and Variables for Analysis

Six instruments were selected for use in this study. Three of these, Indices of Community Characteristics, Junior College Environment Scales, and Faculty Preference Scales, were adopted from the earlier study of 100 colleges. (Hendrix, 1967) Another, the Student Preference Scales, was modified from a measurement procedure developed for the earlier investigation. A fifth, the Junior College Student Inventory, is an omnibus instrument devised expressly for the current study. The final measure, the Work Values Inventory, is a commercially published questionnaire developed by Donald E. Super of Teachers College, Columbia University. This chapter contains detailed descriptions of the six major instruments, their statistical properties, and their scoring procedures.

INDICES OF COMMUNITY CHARACTERISTICS

This group of measures consists of 13 indices, derived through factor analysis and item analysis procedures, from 72 raw community variables. The indices are measures of the economic, demographic, social, and various other characteristics of the legal districts or service areas in which the colleges are located. Most of the raw data used to generate these indices were derived from United States census information. For the majority of the variables, data were available for at least two points in time, based principally on the 1950 and 1960 census reports, and for some information, at three points. All of the 72 raw variables used in deriving the 13 indices were projected to a common base year, 1964. The original sources, the methods used to collect data for districts and service areas, the techniques used to define districts or service areas when these were not co-terminous with census units, and the details of the factor analysis procedures are too lengthy to include in this report. For details on the generation of these variables, Chapter II and Appendixes B, C, and D of the 1967 report should be consulted. (Hendrix, 1967)

The following descriptions of these 13 indices, reproduced in somewhat modified form from Hendrix's report, will serve to establish their meaning and content.

Index C1: Class

This index appears to measure social class for a given unit area. The concept of class is a multi-dimensional phenomenon which describes the status differentiation that exists in any unit area. The dimension classifies people in the unit area into different class categories. The subdimensions that correlate highly on this class factor are:

(1) Income Indices. The loadings of the 72 raw community variables on this subdimension ranged from per cent of families with incomes less than $1,000 at .83 to per cent of families with incomes greater than $10,000 at -.48; the intermediate levels of income were distributed somewhere between these values with a change from positive to negative taking place at the $4,000 income level.

(2) Education Indices. Among the raw community variables, per cent of adults with no school years completed and those with very little education in the primary grades had positive loadings from .54 to .84 whereas per cents of individuals with junior high school and higher education had negative loadings from -.34 to -.60.

(3) Occupation Indices. Per cent of professional and clerical adults had negative loadings whereas privates, and farm laborers and laborers had positive loadings ranging from .36 to .68.

In examining the above list of characteristics, one finds a reasonable and logical consistency across the dimension. Among the raw community variables, low income, little education, and unskilled labor all correlate positively with the Class dimension whereas higher income, more education, and professional or skilled occupations correlate negatively. Therefore, it was possible to make a definite class distinction on the basis of this index. For convenience in measuring this dimension the loadings have been reversed so that higher scores are associated with higher class.

Index C2: Higher Education

This index apparently measures the amount of higher education for a given unit area, as distinct from the education content of Index C1. The raw community variables which contribute to it seem to be quite straightforward in leading to this conclusion. Since this index appears to discriminate higher education levels, as opposed to the general educational level in the Class factor, the per cent of adults with four or more years of college was selected to represent this factor.

Index C3: Mobility

This index appears to measure the amount of mobility in a given area. It has one negative loading for per cent of craftsmen, and positive loadings for per cent unemployed, ratio of rented to owned homes, per cent of non-white, per cents of males, widowed, and divorced, and lastly, farm laborers and laborers.

From an inspection of these various loadings it can be seen that all tend to point to a community of individuals lacking the ties and entanglements usually associated with a non-mobile group. Farm laborers and laborers, as well as non-whites are, in many places, dealt with as itinerants whose services are not always required and which are therefore not marketable twelve months of the year. Such individuals become migrant workers who are forced to move from place to place in order to earn a living. A large ratio of rented-to-owned home dwellers indicates a higher than average mobile population. The per cent of males divorced and widowed and the per cent unemployed correlated highly with the Mobility index, a finding which indicates that these are types of people who are not tied down to one location through family or occupational commitments. On the other hand, it is fairly safe to assume that, in most cases, craftsmen have more commitments if none other than to their positions and occupations.

Index C4: Marital Status

This factor apparently measures the marital status (per cent married) of individuals in a given unit area. It is possibly the most clearly defined index in the analysis. The loadings range from .33 for per cent of females widowed and divorced to .91 for the per cent of married individuals; the other variables relating to marital status were distributed between these two loadings. They included per cent of males widowed and divorced, per cent of widowed and divorced (male and female combined), per cent of males married, and per cent of females married. The per cent of total (male and female) married was selected to represent this index.

Index C5: Economic and Racial Discrimination

This index appears to measure the amount of discrimination present in a given unit area. Loadings on this factor include per cent of non-white and amount of education. Per cent of non-white correlated -.37, and per cent of adults with no schooling, per cent with five-to-seven years of elementary schooling, and per cent with four years of high school correlated .31, .39 and -.32, respectively. This factor seems to indicate areas populated by fairly well-educated Negroes but, at the same time, unit areas in which Negroes still are found in more menial occupations. Loadings for per cent private and per cent services are -.49 and -.31, respectively. These are apparently areas in which Negroes are academically qualified for higher status occupations but are not employed in them.

Index C6: Industrial Unionization

The four variables and their loadings were as follows: per cent of owned homes valued at greater than $15,000 (-.68), per cent of farm laborers and laborers (-.61), per cent of sales occupations (.34) and per cent of service occupations at .47. It seems reasonable to describe this factor as the amount of industrial unionization in the unit area for two reasons. First, it was found that the majority of individuals in the category of farm laborers and laborers were the laborers. Thus, this factor seems to identify areas where there are many laborers with homes of $15,000 or higher but not many people in sales or service occupations. It seems quite reasonable, then, to infer that those in sales and service lack the ability to demand and earn wages necessary for the purchase of homes in this price range whereas the laborer, through unionization, has attained an income of sufficient size to purchase and maintain homes in the price range above $15,000. It should also be noted that service and sales occupations are, in most cases, not unionized as thoroughly as those employing industrial laborers.

Index C7: Housing Imbalance

This index describes an area in which many units of housing are vacant and in which those which are inhabited are quite crowded. The third variable which is negatively correlated with this factor supports the foregoing conclusion since one would not find many persons per room in crowded living conditions where the majority of the inhabitants were of age 65 or older. Such crowded conditions would be expected more with the large family situation in which case there would be a large number of younger rather than older inhabitants.

Index C8: Young Families

The variables and their loadings on this index were as follows: per cent of population 35 to 65 years old (-.87), per cent of population older than 65 years (-.83), per cent less than five years old (.85), per cent 20 to 24 years old (.76), per cent of males widowed and divorced (-.59), per cent of females widowed and divorced (-.76), per cent of families with incomes of $1,000 to $1,999 (-.41), per cent of families with incomes of $7,000 to $9,000 (.34), per cent of families with incomes of $10,000 (.36), per cent of adults with eight years of elementary education (-.41), and per cent of lodging rentals greater than $100 (.56).

In view of the age variables and the negative loadings that the divorced and widowed variables have on this factor, it seems reasonable to assume that this factor indicates the number of young families in a unit area. Higher education and substantially higher income also have loadings in the same direction as those which indicate young families (age and "unmarried" variables). These variables would seem to specify the factor to a certain extent. It probably measures relatively "successful" young families. ("Successful" is used in the sociological sense since these families occupy median positions within the status hierarchy of the community.) It also seems reasonable to assume that younger families would be more inclined to rent rather than to own their living units and this is substantiated by the positive correlation which per cent of rental units greater than $100 has with this factor.

Index C9: Suburban Areas

This index appears to describe a typical suburban area. This conclusion was developed from consideration of the following factor loadings: county population (in actual numbers) had a correlation of .54 whereas the per cent of county population in rural areas had a correlation of -.54. These findings indicate a well-populated area. However, average farm value and average dollars spent per farm on hired labor yielded correlations of .56 and .55, respectively, these resuts pointing to the presence of farms in the described areas. Farms are usually found just beyond the periphery of suburban areas. The magazine index for Class had a correlation of .87. Here we see social class increasing as the magnitude of this dimension increases for any unit of analysis. This probably corresponds to the empirical condition that social class increases as we go from urban to suburban areas and from rural to suburban areas. The magazine index for education has a correlation of .93. More educated people are usually found in suburban as opposed to urban or rural areas. The magazine index for home value has a correlation of .86. Again, the value of homes in suburban areas is generally higher than in either urban or rural areas. Three income related variables -- Effective Buying Income (EBI) per capita, EBI per household, and retail trade (general merchandise) are significantly present in this factor. Such findings suggest the presence of greater wealth in suburban areas. Expense per capita for police has a correlation of .53 with the Suburban dimension, indicating the willingness of suburbanites to allocate tax money for police protection to "keep their neighborhoods safe," even at the greater expense generally required in suburbs.

Index C10: Large Farms

The variables which best delineate this index are the following: population per acre (.46); average farm size (-.82); average farm value (-.34); average dollars spent per farm on hired labor (-.26).

As population per acre decreases it can be assumed the land is likely to be used for agricultural purposes. The last three variables qualify the previous statement by indicating that we are dealing with the larger, more prosperous farms.

Index C11: Consumption

This factor describes the amount of goods and services purchased by the people in a given unit area. Defining the dimensions as Consumption is clearly indicated by the loadings for the various retail trade percapita variables. In addition, EBI per/capita and EBI per household have loadings of .39 and .33, respectively, with this factor.

Index C12: Income

This index measures the income level of families in the unit areas. The basis for this conclusion are the following loadings: per cent of family income correlations range from .45 for per cent of families with income ≤ $1,000 to -.71 for per cent of families with income > $10,000; rental ≥ $100 has a correlation of -.63; EBI per capita has a correlation of -.81 and EBI per household has a correlation of -.75; expense per capita for police yields a correlation of -.88 (If crime rate is held constant, income should be significantly related to police expense per capita); average farm value has a correlation of -.69 and average dollars spent per farm on hired labor has a correlation of -.65 (These two factors are good indicators of wealthy farms); retail trade per capita (general merchandise, apparel and accessories) produces a correlation of -.67 and magazine index for education has a correlation of -.72 (Education is usually significantly related to income); magazine index for value of the home produces a correlation of -.76 (Home value is also a good indicator of income).

Another facet of this factor is the urban-rural dichotomy. High income is more likely to be associated with urban areas and low income with rural areas.

Index C13: Urbanization

Examination of the loadings on this index seems to indicate that the dimension is measuring the degree of urbanization in that unit area. The loadings for per cent of non-whites, ratio of rental-to-owned housing units, income measures, trade, expense per capita for police, and the low positive loading for per cent of county population in the district all seem to identify the large city which accounts for much of the county area and population.

The thirteen community indices were constructed so that high or positive scores on any index indicate greater amounts of the defining characteristics presented in the preceding paragraphs. For those indices that are unipolar in nature, such as C4: Marital Status, there were no negative index numbers. For any index of a bipolar nature, such as C6: Industrial Unionization, lower or negative scores on the index reflect a characterization opposite the description of the dimension as found in the corresponding paragraph above. The sign of the loadings on these factors indicates either the positive or negative end of the dimension.

JUNIOR COLLEGE ENVIRONMENT SCALES

The second primary set of variables derived from the 1967 study consisted of four measures of junior college environments, collectively titled the Junior College Environment Scales (JCES). These four scales were derived by factor analysis and item analysis procedures from a set of 300 items. A sample of students in each of the original 100 colleges responded to these items by indicating whether, in their judgments, the condition described by each item was true or false for their college. After the items were located within the four scales, individual scale scores for each college were derived as follows. If two thirds or more of the respondents reported an item in the keyed direction, the college score on the appropriate scale was increased by one.

If one third or less of the respondents reported the item in the keyed direction, the college scale score was decreased by one. To avoid negative scale scores, a constant equal to the number of items in the scale was then added.

For additional details about the construction, scoring, and interpretation of the Junior College Environment Scales, the earlier report (Hendrix, 1967) may be consulted, especially Chapter III and Appendix E. The following descriptions of these scales will serve to identify their content and meaning.

Scale E1: Conventional Conformity

This first major factor appears to be, at first examination, a combination of the CUES Community and Propriety scales. This is not unexpected since these scales, for the sample of four-year institutions, are moderately correlated. Items associated with the CUES Awareness dimension are conspicuously absent.

Familiarity with public junior colleges grants this dimension a high degree of face validity. In general, this dimension appears to describe a community (in the sociological sense) in terms of self-generated and self-maintained propriety (codes of behavior, conformity patterns, reward and punishment systems, and the like). There appears to be a consciousness by students of group pressures. One might describe this condition as loosely analagous to the gang type of press pattern, except on a much larger scale and obviously directed toward more societally endorsed directions. The Conventional Conformity dimension describes the college as a community in which persons participate actively in many ways and to varying degrees. The right to participate, however, must be earned through conforming to the group mores. Continued participation and sanction by the college community are contingent upon continued conformity to these mores. Acceptance by and inclusion in the group depends to a large extent upon social compliance. There is little room in the group social system for displays of individualism.

Examples follow below. T and F indicate the keyed direction (True and False). Examples:

Important recognition is given to students who achieve scholastic honors. (T)

Most people here seem to be especially considerate of others. (T)

This school has a reputation for being very friendly. (T)

Many faculty members are active in community work -- churches, charities, schools, service clubs, etc. (T)

Most faculty members attend church regularly. (T)

Sociologically, this factor seems to describe a college community resembling Riesman's tradition-directed society and Tonnies' Gemeinschaft society. Life on this campus is governed by a number of well-established standards and ideals which create a disciplined and traditional social structure. Interaction among students and between students and other college personnel, and the personal nature of these interactions, seem to account for the acceptance and internalization of group norms. The interaction is prominent in the behavior of all those who participate in group activities. Two important conditions are associated with a campus marked by Conventional Conformity: (1) Through extensive observation of normative behavior, all members of the group have knowledge of the norms and values which prevail within the social order. (2) Given the large amount of visibility of the role performance of individual members, fellow members and those in positions of authority in particular are better able to sanction deviant behavior.

Two primary subsets of items were discovered within this dimension. They serve to clarify the overall concept of the dimension and describe the subgroups or systems in which students may participate and conform. The first subset of items appears to be concerned with the groupings and activities by which the formal goals and objectives of the college are accomplished. Items in this subset indicate social and cultural concerns as well as classroom-associated goals. Other items describe the interactions among students and between faculty members and students. The organizational activities and regulations associated with particular student groups, clubs, and the like are indicated.

A second subset of items is concerned primarily with the less formal social activities of students and faculty. Proper mores governing student activities such as dating, parties, sports, and concerts are stressed. Faculty participation in such activities, many varieties of informal student-faculty interaction, and the socialization of new students by deliberate efforts of the upper classmen are examined by the items. Another important characterization of colleges scoring high on this scale is that their students have internalized the norms and values of the social structure. They are not rebellious nor do they deviate from the rigid and, thus, often frustrating requirements of the college community. This characterization is evident in the obedience to common practices, identification with the school, and general esprit de corps which mark the behavior of students in such colleges.

Scale E2: Internalization

The second major dimension resembles the CUES Awareness* scale but with greater emphasis upon individual and personal concerns. A general awareness of social, cultural, political, artistic, and philosophical issues and problems is evident in some items, but the combination of other items emphasizes generally an awareness of issues and problems as they either affect or might affect the individual student. Many of the items indicate an awareness through participation rather than intellectual awareness or reflection. Awareness through involvement and through relatively common everyday experiences appears to differentiate this dimension from the senior college awareness dimension. When the nature of junior college students, relative to that of the majority of senior college students, is taken into consideration, the distinction makes sense. In general, junior college students tend to come from lower socioeconomic families, are less concerned about and experienced in the abstract intellectual treatment of issues and problems, and often have a wider variety of experiences (military, work, etc.) than students in more selective and academically oriented institutions.

This dimension also represents a combination of what is assessed by the CUES Scholarship and Awareness scales. It seems to define a continuum of types of ideas a given college is interested in transmitting to its students. At one end of the continuum we find an emphasis on developing an abstract, logically closed system of ideas, and at the other we find a concern for developing practical, concrete ideas which will facilitate the student's present and future adjustment to the everyday world. We find, also, a common characteristic present in all of these pursuits--an emphasis on learning through participation and involvement in the learning experience.

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* Pace, C. Robert, College and University Environment Scales: Technical Manual, Princeton, New Jersey, Educational Testing Service, 1969.

Sample items within the Internalization dimension are:

New ideas and theories are encouraged and vigorously debated. (T)

There is a lot of interest here in poetry, music, painting, sculpture, architecture. (T)

There are many facilities and opportunities for individual creative activity. (T)

Course offerings and faculty in the natural sciences are outstanding. (T)

Modern art and music get little attention here. (F)

There is considerable interest in the analysis of value systems, and the relativity of societies and ethics. (T)

There is a lot of interest in the philosophy and methods of science. (T)

There are courses or voluntary seminars that deal with problems of social adjustment. (T)

The school offers many opportunities for students to understand and criticize important works in art, music, and drama. (T)

Many students have traveled overseas. (T)

A general interest is expressed in the pursuit of knowledge and the understanding of historical, artistic, social, political and philosophical phenomena. The conditions necessary for these purposes are supported and an active participation in the learning process is indicated.

Another aspect of this dimension is an awareness of intellectual interests of primarily social and philosophical origin. Conflicting values and social conflicts are of major concern. The emphasis, however, is not upon finding just rational solutions to these problems in an intellectual sense but rather upon understanding and adjusting to their presence as a precondition for controlling one's own welfare. This posture might be called an inner-directed awareness. The individual's concern seems to be, "How will it affect me?" "How shall I respond?" A concern for independent and speculative thinking is evidenced mainly regarding those ideas which will facilitate adequate functioning in future social roles. This type of academic concern would probably be situated in the middle of the previously mentioned continuum. Again, participation in the learning experience is stressed.

Another characteristic of the Internalization scale could be called a detached awareness of social, cultural, and artistic concerns. Personal involvement and participation are of less importance than are study and the analysis of social, cultural, and artistic phenomena. Related items indicate interest in probing and speculating in a logical manner about abstract ideas, in understanding the meaning and essence of things. Empirical and experimental verification of these ideas is not stressed. Interest is centered upon disciplines which are least empirically based (poetry, theology, music, philosophy) and therefore more open to free-ranging thinking and speculation. This type of reflective thinking would be at one extreme of our continuum.

A final group of "awareness" items focuses almost completely on the individual. These might be said to tap self-awareness. Emphasis is placed upon self-fulfillment, adjustment, and the development of practical skills primarily of a social nature. The goal is to obtain knowledge that will best serve the practical purpose of assisting in the adjustment to and adequate performance in one's future roles in society. Items measuring self-awareness deal with the type of academic thinking which would be situated at the opposite end of the continuum defined in the previous paragraph.

Scale E3: Maturation

The third scale appears to be concerned primarily with what might be called growth, maturity, and responsibility. This factor contains a number of items from the CUES Scholarship scale (indicating personal involvement, concern and interest). Sample items are:

Students here learn that they are not only expected to develop ideals but also to express them in action. (T)

Faculty members are always polite and proper in their relations with students. (T)

The values most stressed here are open-mindedness and objectivity. (T)

Most courses are a real intellectual challenge. (T)

Most of the instructors are very thorough teachers and really probe into the fundamentals of their subjects. (T)

Courses that fulfill general education or distribution requirements fit together to give students a well-rounded experience. (T)

Students are conscientious about taking good care of school property. (T)

Students are very serious and purposeful about their work. (T)

Most of the students here are pretty happy. (T)

Students often start projects without trying to decide in advance how they will develop or where they will end. (F)

This dimension could describe a college environment which encourages the development of "junior college inner-directedness." Riesman (1961) describes an individual whose source of motivation and direction comes from the individual himself as a result of internalizing generalized goals early in his life. (In this case, "early" includes the college years.) The concept is seen more clearly if we compare it with "other-directed" individuals. For the latter, their contemporaries are the source of direction and the goals toward which they strive shift with this guidance. The college which is characterized as high on the Maturation scale seems to play the function of developing inner-directedness by encouraging independence and logical and practical reasoning in order that the student may achieve his "maturation" goals.

Another indication of the college's emphasis on practical inner-directedness concerns faculty and courses. First, one important necessity of formal education which attempts to inculcate inner-direction is qualified teachers. Second, the friendly and helpful relationships that exist between students and faculty facilitate the communication of ideas and logical techniques necessary for inner-direction. Third, the college's emphasis on knowledge and logical thinking is a necessary condition for succeeding in one's course work. Finally, for the college which ranks high in this dimension there is also evidence that students have developed practical inner-direction.

High scores on this scale indicate an environment in which self-determination and direction are encouraged and valued. Maturity, responsibility, personal growth, development of interests, allocation of effort and time, are all areas of concern. The development of job skills, social skills, and citizenship, are encouraged. All areas of life are touched upon, but the primary area of concern has to do with the formal educational program (course work, study, achievement) of the institution.

Scale E4: Humanism

This factor seems to be describing a student body interested in dicussing, sharing and debating ideas and theories of philosophy, politics, music, theology, and the like outside of the classroom. Student extracurricular activities involve such events as group discussion, attendance at lectures by men of science, and visits to art galleries. Emphasis in these extracurricular academic activities is on group participation as opposed to individual activities. However, there also exists a lack of social cohesiveness within the student body.

Table 19 presents the intercorrelations, means, standard deviations, and reliability coefficients for the four Junior College Environment Scales. As the figures show, there is considerable statistical interdependence among the scales, the median intercorrelation being of an order of about .35. Only Scales E1 and E2 fail to yield a close relationship. Internal consistency reliability for the scales is high, the coefficients ranging from .86 (for E4) to .94 (for E1).

TABLE 19

Intercorrelations, Means, and Standard Deviations of the Junior College Environment Scales for 100 Colleges

(Reliability coefficients appear in the diagonal elements*)

Scale	E1	E2	E3	E4
E1: Conventional Conformity (46 items)	(.94)	.06	.49	-.31
E2: Internalization (26 items)		(.88)	.33	.39
E3: Maturation (30 items)			(.91)	.37
E4: Humanism (21 items)				(.86)
Scale Mean	54.1	24.9	45.2	14.2
Scale Standard Deviation	11.6	6.4	6.1	4.9

*Reliability coefficients were computed by means of Kuder-Richardson formula #21

FACULTY PREFERENCE SCALES

The third set of variables derived from the 1967 study consisted of two faculty preference scales. These scales were developed by factor analysis and item analysis procedures from the same set of 300 items used to define the Junior College Environment Scales. For the Faculty Preference Scales, however, a sample of faculty members were asked to rate the desirability of each item on a 5-point scale. These two scales thus define two major dimensions along which the preferences of faculty members vary. For detailed procedures the earlier report (Hendrix, 1967) may be consulted, especially Chapter II and Appendix G. The contents of these two scales are as follows:

Scale F1: Students

In this set of items the faculty seems to describe the type of student body it would prefer to deal with. Fifteen of the items are concerned with characteristics of the students, student activities, and the like. Five of the items describe characteristics of the formal academic structure, such as the curriculum, teaching, and courses. Examination of these latter items indicates, however, that student characteristics or behaviors are also involved.

Sample items are:

Personality, pull, and bluff get students through many courses.

The way most exams are given it would be easy for a student to cheat if he wanted to.

Student rooms are more likely to be decorated with pennants and pin-ups than with paintings, carvings, mobiles, fabrics, etc.

A lecture by an outstanding scientist would be poorly attended.

Students who work hard for high grades are likely to be regarded as odd.

Students pay little attention to rules and regulations.

Students spend a lot of time worrying about what kind of jobs they can get.

Students are sometimes noisy and inattentive at concerts and lectures.

There is very little studying here over the weekends.

The student newspaper rarely carries articles intended to stimulate discussion of philosophical or ethical matters.

To most students here art is something to be studied rather than felt.

Although it is seldom helpful to describe a dimension in the "negative," this appears to be the most logical method of interpreting this cluster of items. Stated differently, the faculty members appear to be describing a student population that they would not prefer.

These items seem to be describing a college in which there is clearly a lack of concern for academic achievement within the student culture. The pursuit of knowledge occupies a low position in the hierarchy of student values. Their main interests, which may be considered the reverse side of the same coin, are expressed through practicing their newly found freedoms and participating in the social activities of the college. Other items in this scale directly express the lack of concern with academic achievement and standards on the part of the student group. Another aspect of this non-preferred type of student culture, which is related to the students' greater concern with "social" matters, is their defiance of the established norms governing college activities and behavior. Finally, there are other items which indicate that the organization of most courses at the college makes possible many of the non-preferred student attitudes and behaviors mentioned above.

Scale F2: Liberal Arts

The items which best define this dimension appear to describe, at the "preferred" end of the dimension, a small, friendly, intellectually active and socially responsible college community. An observer might conclude that the faculty members would prefer to be in a college quite similar to the usual stereotyped concept of the small, intimate, and selective liberal arts college.

Sample items are:

New ideas and theories are encouraged and vigorously debated.

In many buildings there are coffee lounges or other pleasant spots for conversation.

Special museums or collections are important possessions of the college.

Students are encouraged to be independent and individualistic.

There is a lot of interest here in poetry, music, painting, sculpture, architecture, etc.

There are many facilities and opportunities for individual creative activity.

Courses, examinations, and readings are frequently revised.

Careful reasoning and clear logic are valued most highly in grading student papers, reports, and discussions.

Class discussions are typically vigorous and intense.

The school offers many opportunities for students to understand and criticize important works in art, music, and drama.

Tutorial or honors programs are available for qualified students.

Many students here develop a strong sense of responsibility about their role in contemporary social and political life.

Students are actively concerned about national and international affairs.

Students set high standards of achievement for themselves.

The apparent smallness of the institution is indicated by the items describing the friendly and cohesive relationships which exist within the college. Student-faculty relationships are mutually supportive and satisfying and the general atmosphere within the college projects a feeling of friendliness. Emphasis on both practically-oriented and scholarly-oriented courses and activities is indicated by some of the items in this dimension. Such items appear to describe the "liberal arts" concept accurately since they deal both with the scholarly study of social and cultural phenomena as well as the preparation of students to deal effectively with the indicated social and cultural experiences. This scale, at its preferred pole, clearly describes a hypothetical college in which a great stress on scholarship exists. Environmental conditions, both social and physical, encourage the pursuit of knowledge and independent thinking. Students in turn tend to internalize these values and are thus personally motivated toward academic achievement. Other items in the scale indicate that courses, examinations, and class discussions in such a college are, indeed, organized to promote independent and scholarly thinking. Moreover, the college facilities offer opportunities to study and discuss course materials. The effect of these conditions is evident in the students' voluntary participation in intellectual activities. A student subgroup in which individual members have internalized the value of "academic success" is preferred. Students are personally motivated to pursue knowledge, to take an active part in their own education. Ideas and theories associated with the different academic disciplines are enthusiastically discussed, shared, and debated outside of the classroom.

A random sample of 779 faculty members was selected from the 100 colleges and this sample was used for the development of the Faculty Preference Scales. Each of the 100 colleges then received a mean score on each scale based on the total group of faculty members responding at that college. Table 20 presents the resulting descriptive statistics for the Faculty Preference Scales.

TABLE 20

Descriptive Statistics for Faculty Preference Scales

(Based on 100-College Sample)

	SCALE F1:STUDENTS	SCALE F2:LIBERAL ARTS
Mean	79.78	53.75
Standard Deviation	2.30	3.66
Reliability*	.85	.92

*Computed by Kuder-Richardson formula #21 on a random sample of 779 faculty respondents

STUDENT PREFERENCE SCALES

Another set of variables was developed in the 1967 study but the resulting data were not used directly in the current study. The variables consisted of two student preference scales that define major dimensions along which student preferences for environmental characteristics vary. These two scales were derived from the same set of 300 items in a manner identical to that used for the faculty preference scales. The scales were developed on a representative sample of 1000 students from the 100 colleges. In the earlier study, mean scores were assigned each college on each student preference scale, based on the entire sample of students completing the instrument at that college.

The preceding chapter of this report, Sampling Procedures, describes the method by which the current sample of 24 colleges was selected and compares the current sample with the remaining 76 colleges of the base sample of 100 institutions on the two Student Preference Scales, the Faculty Preference Scales, the Junior College Environment Scales, and the 13 community indices. In that sampling procedure, the Student Preference Scales were used to assign scores to colleges. In the current study, however, these scales were re-administered so that individual preference scores could be obtained for each student. The content of these scales is as follows:

Scale S1: Scholarship and Intellectual Environment

This scale indicates a serious concern on the part of the student in ideas and in pursuing knowledge. However, this particular factor seems to measure more the desired conditions within the college that make this endeavor possible for the student than the existing attitudes toward scholarship within the college.

First, the student prefers that the faculty be very involved in their subjects and interested in improving their knowledge of fields through research and other scholarly activities. He perceives a knowledgeable and enlightened professor as better able to interest and stimulate his students in the content area in which he is teaching. The student also believes that the organization of the curriculum and courses which is most conducive to intellectual interests is that which favors student-faculty communication and class participation. He expresses a preference for faculty members who are not only interested in probing and criticizing ideas, but who are also concerned with communicating these ideas to the students. In his preferred college environment, there is an opportunity for the students themselves to participate in the learning process as active members, and this condition contributes to a feeling of belonging to and identification with given courses of study and their main objective, namely, the pursuit of knowledge.

A number of other variables seem to specify this factor. They appear to indicate an intellectual interest in social relations and events and the reasons for and behind them. Again, the items describe the conditions which promote this interest, but we also find items by which the student directly expresses his favorable attitudes toward seeking knowledge in given areas.

Another set of items within Scale S1 comes entirely from the section of the instrument which deals with general characteristics, facilities, administration, rules and regulation of the college. The preferred environment is one of free and independent thinking -- freedom from conventional bounds of the community which restrict and narrow one's perspectives in solving problems. The student who scores high on Scale S1 prefers that opportunities for study be readily available and, thus, he indicates a general interest in intellectual pursuits. Other items denote that he attaches desirability to such factors as esthetics and pleasant surroundings. In so far as he values a group spirit within the college, it appears to be one that centers on intellectual and academic freedom.

Scale S2: Sociability

All of the items defining the Sociability variable pertain to students and student activities. This major dimension along which student preferences differ seems primarily concerned with social relationships with other students and student activities and with many typical college activities, such as student government, rallies, and other social events. The dimension can be divided into two subsets of items which assist in understanding the nature of the factor.

Although the dominant theme among these items is social relations and activities, mainly with other students, several items suggest that these activities and relationships may be directed toward what might be regarded as serious, purposeful concerns not unrelated to the educational goals of the college. Another set of items also indicates a preference for sociability, but the motivation here seems more closely related to conviviality. The items do not appear to be tapping the serious, educational, goal-directed concerns of the first subset.

Another set of items, if it were to be considered a separate factor, could be entitled "academic irresponsibility." This subset seems to measure the extent to which the student subgroup includes members who have not adapted to and internalized the values of the academic world. This condition, plus the related circumstance in which we find most junior college students in the process of breaking ties with their families, probably combine to increase the lack of student regard for the obligations and responsibilities addressed by the items.

The items used to obtain measurements on the two Student Preference Scales for the current sample of students were selectively drawn from Section B, Part II of the Junior College Student Inventory (JCSI). The major portion of this instrument may be found in the Appendix to this report. (The JCSI itself will be described in the next section of the report.) Scale I: Scholarship and Intellectual Environment consisted of items 2, 3, 17, 20, 27, 32, 33, 34, 35, 38, 44, 54, 55, 56, and 61. Scale S2: Sociability consisted of items 8, 10, 12, 13, 14, 15, 16, 18, 19, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 36, 39, 40, 42, 43, 45, 46, 48, 49, 50, 52, 57, 59, and 60. (To identify these items, consult the Appendix.) Some of the items listed in this section of the Junior College Student Inventory (Section B, Part II) were not scored. This was because refinement of the scales was completed after the JCSI was developed, printed, and administered to students in the 24-college current sample in the fall of 1966.

For purposes of statistical analysis and the computation of results, the two Student Preference Scales were scored by summing the ratings, 1 to 5, on all items constituting each scale. A score of 5 was assigned to the strongest preference end of the rating scale. Therefore, higher scores on these scales signify stronger preferences and lower scores signify weaker preferences or dislike. The Faculty Preference Scales, using data from the 1967 report, were scored in an opposite manner. Strong preference was indicated by a rating of one and dislike by a rating of five. Thus, higher scores indicate weak preference or rejection of the conditions described by the items.

The Community Characteristics Indices, Faculty Preference Scales, and Junior College Environment Scales were used to compute institutional mean scores for all colleges in the 1967 study. For the 24 colleges in the current study, the 1967 means were again used to describe institutions on these environmental variables. However, in the current study, in which students rather than colleges were the units of analysis, the scores assigned to any student on the forementioned environmental variables were the means of his particular college, based on the 1967 study.

JUNIOR COLLEGE STUDENT INVENTORY

The variables collected expressly for this study were obtained in two ways. First, the Junior College Student Inventory (see Appendix) was administered to as many new freshmen as possible in the twenty-four colleges in the fall of 1966. The data included individual scores on the Student Preference Scales, as mentioned above, even though these scales used the colleges as the units of analysis in the 1967 study. Secondly, a series of follow-ups were conducted at the colleges to ascertain for each student both his last college status after two years (e.g., still in school but changed program, completed program, dropped out) and his post-two-year employment status (e.g., employed in field in which trained, employed in different field, unemployed, housewife, student). The variables derived from the Junior College Student Inventory will now be discussed. Those used in the follow-up procedure will be described at the close of this chapter.

Some items of demographic information do not appear on the JCSI itself but were collected by means of the answer sheet devised for the JCSI. These included the student's sex, whether or not the student was a high school graduate, marital status (single, married, widowed, divorced, separated), and the student's birth date (month, day, and year). The birth date was converted to age as of September 1, 1966 and is reported accordingly in other sections of this study.

General Aptitude Test Battery (GATB) Subtests

Section A of the JCSI consisted of three subtests from the General Aptitude Test Battery (GATB) which were reproduced with the permission of the United States Department of Labor. These three subtests were Arithmetic Reasoning, Three-Dimensional Space, and Tool Matching. (Because of their restricted use, they are not included as part of the JCSI which appears in the Appendix to this report.) Students marked their answers to the items in these three subtests on an optical reader sheet and direct scores were computed by the Digitek Optical Reader. Department of Labor publications, including technical manuals, may be consulted for more information about these GATB subtests. (Dvorak, 1955; Dvorak, 1956; Jex and Sorenson, 1953; Mapou, 1955)

During the design phase of the project, it became apparent that the General Aptitude Test Battery offered an appropriate set of ability measures for use with the population of this study -- primarily occupational students in public community junior colleges. This was decided after an examination of the testing literature, including Department of Labor publications describing the characteristics and uses of the GATB. Advice was sought from several consultants prominent in occupational psychology and vocational education. Among these were Melvin Barlow, University of California at Los Angeles, and Donald Super, Teachers College, Columbia University.

For reasons of economy, it became necessary to limit consideration only to the written subtests of the GATB. Since a considerable amount of information was being requested from students in the participating colleges, the budgeting of testing time was also a limiting factor. Therefore, selection of subtests for this study was restricted to Arithmetic Reasoning, Three-Dimensional Space, and Tool Matching. Arithmetic Reasoning was selected as a fairly strong proxy for general intelligence. Many research studies have shown this and similar tests to be valid predictors of academic achievement and school persistence. Also, arithmetic skills are important factors in success in many of the technical programs found in the colleges. Three-Dimensional Space and Tool Matching were selected for use in this study primarily on the basis of their content validity for forecasting successful completion of many of the occupational programs. U. S. Department of Labor publications furnish occupational ability patterns and other supporting data pertaining to the effectiveness of these subtests as predictors of success on the job.

Several of the correlation matrices reported in the GATB test manual had been factor analyzed by use of the principal component method with varimax rotation. None of the reported samples for which this procedure was carried out was directly related to the population of interest in the current study (junior college students, especially those enrolled in occupational programs), but some samples were indirectly related (e.g., recent high school graduates, Air Force recruits). The factor analysis findings are not reported here since they were somewhat inconclusive. In general, however, when the written subtests were subjected to this type of analysis, anywhere from two to five factors with eigenvalues equal to or greater than 1.0 were found. The three GATB subtests chosen for use in this study were always significantly loaded on three different factors (where three or more factors were produced), but not to such an extent that they could be regarded as single proxies for these factors. This is because other tests also loaded significantly and, quite often, one of the three chosen GATB subtests loaded on two different factors. In general, however, these analyses helped support the choice of these GATB subtests for use in the current study.

Likelihood of Success

For purposes of both the descriptive and inferential treatment of student information in the study, items from the Junior College Student Inventory (JCSI) were extensively used, sometimes individually to represent relevant student characteristics and, at other times, in selected combinations of items to define other meaningful student characteristics. The first such combination of JCSI items provides an operational definition of Likelihood of Success, taken in the scholastic sense. This measure was derived by averaging the responses to items 59 through 66 in Section B of the JCSI. (Refer to the Appendix of the report for the precise wording of these and other JCSI items which are identified by item numbers only in this discussion.) In any case in which a student failed to respond to one or more of these items, his score on the variable was computed as an average on the items to which he did respond. A student response of "almost certain" was assigned a rating scale value of 5 while the response of "not very likely" was given a rating scale value of 1. This scale indicates the extent of the student's confidence in his own likelihood of competitive academic success in eight programs at the college. Six programs, common to all students on this scale, were selected to reflect a variety of abilities and occupational education content areas (items 61 through 66). The student's ratings for the specific program in which he was enrolled and the one which he stated he would find most interesting (items 59 and 60) were also included in this scale, since an overall subjective index of scholastic self-confidence was desired. Higher scores on this measure thus reflect greater confidence in one's likelihood of success.

Judged Achievement

This measure was derived by averaging the responses to items 70 through 76 of the JCSI, Part B. In these items the student expressed his judgment about the extent to which he was achieving several commonly accepted educational goals. Since students completed the JCSI within the first few weeks of their college experience, their scores may have been less an indication of their actual attainment of the specified educational objectives than of their self-confidence and expectations about their own attainment levels. Again, higher scores on this measure denote greater achievement and lower scores indicate lesser achievement.

Satisfaction with One's College

Another variable which perhaps rested more heavily on expectations than on extensive experience with campus life was labeled Satisfaction with One's College. This measure was derived by averaging the responses to JCSI items 79, 80, and 84. Higher scores on this measure indicate greater satisfaction with the college and lower scores denote lesser satisfaction with or liking of the college.

Academic Change-Press

Items 85 through 90 of the JCSI asked the student to report, first, whether or not his parents, friends, and faculty or counselors, respectively, had ever suggested or advised that he go to a four-year college instead of a junior college, and secondly, whether or not these agents of potential social influence had ever suggested or advised that he drop out of school. Item 91 asked the student whether or not his parents had suggested or advised that he change programs and item 92 asked whether he, himself, had considered dropping out. In most of the analyses in which this series of items was used, items 85 through 90 and item 92 were combined into a seven-item change-press variable. Item 91 was omitted since responses to this item did not indicate the direction of press. (Suggestion of 4-year college = upward press; suggestion to drop out = downward press.)

Responses to these items were on a three-point scale of "yes, frequently;" "sometimes;" and "no." The item scoring is oriented such that higher scores on this measure indicate that the student is being exposed to a press toward higher aspiration, i.e., movement to a four-year college. Lower scores signify a press toward lower aspirations, i.e., dropping out of college. To repeat, the composite score on this measure was obtained by averaging the responses to items 85 through 90 and item 92.

Socioeconomic Status

Items 94 and 95 of the JCSI, Section B, ask the student to state successively his father's or guardian's occupation and his parent's or guardian's level of educational attainment. Item 95, Educational Attainment, was scored by assigning the numbers 1 through 9 to the responses indicated by letters A through I. The scoring of Item 94, Father's or Guardian's Occupation, was based upon the Duncan Socioeconomic Index, a scale distributing occupations into ten categories of a socioeconomic hierarchy. (Reiss et al., 1961) This item thus indicates a reported measure of social status or prestige based on the occupation of the student's father or guardian. The family occupation reported in the JCSI by each student was assigned a numerical value according to the occupational grouping in which it fell. The Duncan classification and corresponding index numbers, as used in this study, were as follows:

Numerical Value	Occupational Category
8	Professional (doctor, lawyer, teacher, scientist, engineer, etc.)
6	Semi-professional and technical (airline pilot, draftsman, nurse, dental technician, electronics technician, etc.)
7	Executive, managerial, or administrative position in business, government, or industry (buyer, inspector, store department head, bank executive, etc.)
7	Self-employed proprietary or managerial position in business or industry.
5	Clerical position (bookkeeper, cashier, secretary, telephone operator, etc.)
4	Salesman
3	Craftsman (cabinetmaker, typesetter, printer, toolmaker, plumber, electrician, mechanic, etc.)
2	Farm owner or manager

Numerical Value	Occupational Category (continued)
5	Foremen in construction, manufacturing, etc.
6	Creative artist (musician, actor, sculptor, writer, dancer, etc.)

Item 95, Educational Attainment, was scored by assigning the numerical values 1 through 9 to corresponding levels of parental or guardian educational attainment, as follows:

1 - Sixth grade or less
2 - Seventh, eighth or ninth grade
3 - Some high school but not a high school graduate
4 - High school graduate
5 - Some college but less than two years
6 - Two years of college
7 - Three or four years of college but not a degree
8 - A four-year college degree
9 - More than a four-year college degree

In certain sections of this report the two socioeconomic status items (occupational status and educational level of parent or guardian) are used as separate variables. In others, they are combined to produce an overall index by averaging the responses to these two items of the JCSI.

Work Values Inventory

Another instrument was administered immediately after the JCSI at all twenty-four colleges, this being the Work Values Inventory by Donald E. Super. Students placed their answers for the 45 items which constituted this instrument, three items per scale, on the same optical reader sheet as that used for JCSI responses. The 15 scales comprising this instrument have been shown to have some validity in accounting for congruence between values held by workers and characteristics of the work environment. Since the primary focus of this study was to be upon occupationally oriented colleges and their students, this instrument was included. The 15 scale names are listed below. Their definitions are to be found in the Manual for the Work Values Inventory. (Super, 1970)

Work Values Inventory Scales

1. Creativity
2. Management
3. Achievement
4. Surroundings
5. Supervisory Relations
6. Way of Life
7. Security
8. Associates
9. Esthetics
10. Prestige
11. Independence
12. Variety
13. Economic Returns
14. Altruism
15. Intellectual Stimulation

Curricular Program

Item 46, Section B of the Junior College Student Inventory asked the student to report his own specific program of study. In responding, he selected what he judged to be the most appropriate choice from among the extensive list of occupational curricula presented on the two pages of the JCSI preceding item 46. (See Appendix) On the basis of his response, the student was classified as an occupational student (if he indicated a program with a code number of 85 or less), a transfer student (if he indicated a program with a code number of 90 through 95), or undecided (if he did not indicate a program). These program codes were constructed after careful analysis of the catalogs and occupational education brochures supplied by the colleges. In most cases this impression was supplemented by correspondence and telephone calls with appropriate college personnel. The detailed list of occupational programs in the JCSI included all of the occupational curricula offered at the twenty-four colleges as of September, 1966. A coarser categorization was developed for the transfer curricula since these were not of primary interest.

Occupational Program Prestige Differentials

Anyone familiar with public community junior colleges which attempt to offer a wide variety of occupational, as well as academic, programs realizes that the low prestige or status accorded different occupations and their related training programs constitutes one of the major obstacles to the operation of successful occupational curricula. The dominant culture, particularly as its values are reflected in collegiate institutions, has thoroughly inculcated a set of attitudes which make certain occupations and related training programs appear less desirable than others. The frequently documented social and parental pressures to pursue baccalaureate degrees give striking evidence of this bias. Much of the literature on social class membership, occupational psychology, and guidance deals with this general problem. Consequently, the decision was made to include, as one of the major dimensions in this study, a measure of relative prestige or social status as perceived by students in the participating colleges. It was felt that such a measure, if reliable, might shed light on the relationship between the differing attitudinal climates toward occupational training on the several campuses and important outcome criteria, such as percentages of students enrolled in and completing occupational programs, and percentages of students obtaining employment in fields related to their occupational training.

By means of the Junior College Student Inventory, several attempts were made to obtain indices of students' relative prestige ratings of occupational programs. The most reliable and content-valid measures were used. The next several pages describe the procedures by which these measures were converted into a set of six variables termed "prestige differentials."

In responding to items 1 through 45, Section B of the JCSI, each student judged his relative position on nine characteristics, as compared to "typical" students in five other programs. These characteristics dealt with education level; potential earning power; intellectual, cultural, and social emphases; and one question which asked directly about "prestige." The content of these nine comparisons relates more or less directly to the content of numerous prestige or socioeconomic status measures. The five groups of students (five different occupational programs) against which each student constantly compared himself on all nine characteristics were selected on the basis of the following rationale.

(1) The five occupational programs were present in all 24 colleges.

(2) The five programs may be regarded as occupational stereotypes in that they are generally among the most visible programs available to students in public community junior colleges.

(3) The distributions of the socioeconomic indices which are prestige indices for specific occupations related to the five occupational programs (e.g., automobile mechanic as an occupation related to the automotive technology program; electronic technician as an occupation related to the electronics program), although skewed, are dispersed over the major part of the range on such indices. Thus, the five occupational program groups chosen represent a wide range of occupational prestige values, as perceived by students.

The 45 JCSI items permitted the calculation of a "perceived prestige" score for each student on each of the nine points of comparison (potential earning power, educational level, etc.). The hypothetical or "typical" student in each of the five programs was arbitrarily assigned a scale value as follows, based upon the estimated relative social status or prestige ranking of his occupational program: premedical student = 5, accounting student = 4, electronics student = 3, secretarial student = 2, automotive student = 1. If the individual student at any college, responding from the perspective of his own occupational program, indicated that he had more of the particular quality on which he was making a comparison than the "typical" student in another program (e.g., believes himself to be better educated in the humanities and fine arts than that hypothetical student), he received the score value assigned to that occupational program for that comparison. If he indicated that the comparison student had more of the particular quality (e.g., better education in the humanities and fine arts), his score was reduced by the same amount. For example, if a student indicated that he had potentially greater earning power than the typical accounting student, he received a score value of 4. If he said he had less potential earning power than the typical accounting student, his score was decreased by 4. This scoring scheme was used for each of the nine content comparisons. A constant of 15 was added to each student's score to avoid negative scores.

The possible scores on each of the nine comparisons thus ranged from zero through 30. This procedure produced a score distribution which was skewed, much like that of the population of SES values.

The nine scores were tentatively combined in several ways. For example, all items relating to education were combined. However, none of these combinations resulted in a scale with satisfactory reliability. Finally, all nine comparison scores were combined and averaged to yield a composite occupational prestige score for each student. Scores computed by this scheme proved to have adequate reliability (See Table 22) and, thus, were usable in the final derivation of the six prestige differentials.

Item 46, Section B, JCSI, asked the student to identify his own specific program of study. His composite occupational prestige score, developed in the manner outlined just above, was averaged along with the scores of all other students in his specific program within his particular college, and the resultant mean was then assigned to all students in this cluster. Mean prestige scores were calculated in a similar way for all programs offered at each college. In items 47 through 52 of the JCSI, each student reported, respectively, the program in which most of his college friends were found (47), a program to which his friends might have suggested a transfer (48), a program to which faculty members or counselors might have suggested he transfer (49), a program to which his parents might have suggested he change (50), the program he intended to pursue about a year before actually entering college (51), and the specific program that he believed he would find most interesting if he did not have to consider such limiting conditions as grades, prerequisites, income, and availability of employment (52).

The use of items 47 through 52 permitted the calculation of the prestige differentials between the program in which the student was presently enrolled and the six programs identified in JCSI items 47 through 52. This was done by subtracting the mean prestige score of the program in which the student was actually enrolled from each of the mean scores of the programs he identified by his item 47-to-52 responses. For example, a student who indicated he was enrolled in the Electrical Technology program but who reported that most of his college friends were in the Business Administration program (see JCSI, Section B, page B 34 in Appendix) had the mean prestige score for Electrical Technology students at his particular college subtracted from the mean prestige score of Business Administration students at that college. Each of the six resulting prestige differentials yielded a possible score range from minus 30 to plus 30. A positive differential indicates that the program the student identified by his response to item 47, etc. possessed greater prestige than his own. A negative differential indicates the opposite, that is, that any program he identified by his response to item 47, etc. had less prestige than the one in which he was enrolled. For those students who did not indicate specific programs, (that is, they were "Undecided" about occupational program), an arbitrary prestige differential score of 0 was assigned, regardless of the programs they indicated for their friends or which others had suggested to them.

The occupational program prestige differentials, calculated in the manner described above, have face validity as indicators of those pressure from peers, faculty, and parents, and of those interests of the student, that might be associated with the desire to change or not change programs, or to make curriculum choices from among the various programs available. The primary content of these pressures can be conceived in terms of the "perceived prestige" or status of various programs within a given college. Whether these measures are related to predictor variables such as the Junior College Environment Scales, or to final outcome variables, such as completion of occupational program in which initially enrolled, will be reported with other findings of the study later in this report.

DESCRIPTIVE DATA ON ENVIRONMENTAL VARIABLES AND STUDENT CHARACTERISTIC VARIABLES

Means and standard deviations were calculated for the college environment variables described earlier in the chapter and for the student trait variables derived from the JCSI and the Work Values Inventory, these latter measures also having been described in this chapter.

Table 21 presents means and standard deviations for major variables based on twenty-four colleges and a total sample of 9610 junior college students. The sample breakdown by sex and program (occupational, transfer, undecided) was presented earlier in Table 18a in Chapter 3, Sampling Procedures.

TABLE 21

Means and Standard Deviations of Major Variables in Current Study (Based on 24 Colleges and 9610 Students)

VARIABLE	MEAN	STANDARD DEVIATION
Community Characteristics		
C 1: Class	71.7761	24.4593
C 2: Higher Education	6.8524	1.6042
C 3: Mobility	-7.4367	4.1312
C 4: Marital Status	50.0737	7.6292
C 5: Economic, Racial Discrimination	-3.8968	15.3195
C 6: Industrial Unionization	439.2851	235.8155
C 7: Imbalance in Housing	-16.0702	13.9307
C 8: Young Families	-43.1105	19.3203
C 9: Suburban Areas	5145.5034	3216.0815
C10: Large Farms	-221.6123	389.9617
C11: Consumption	2010.8341	322.0123
C12: Income	27.2155	25.0490
C13: Urbanization	35.3098	297.5403
Junior College Environment Scales		
E 1: Conventional Conformity	53.7863	11.1178
E 2: Internalization	22.0054	4.8424
E 3: Maturation	44.7571	4.7523
E 4: Humanism	13.4615	4.6992
Faculty Preference Scales		
F 1: Students	80.1878	1.8249
F 2: Liberal Arts	53.9742	3.3373
Student Preference Scales		
S 1: Scholarship and Intellectual Environment	55.5126	7.8132
S 2: Sociability	99.2110	11.2379

TABLE 21 (continued)

VARIABLE	MEAN	STANDARD DEVIATION
JCSI Variables		
GATB: Arithmetic Reasoning	13.0365	2.8227
GATB: 3-Dimensional Space	19.8682	5.6775
GATB: Tool Matching	30.9840	5.8972
SES : Father's/Guardian's Occupation	5.0322	2.0695
SES : Parent's/Guardian's Education	4.3801	1.9664
Likelihood of Academic Success	2.6134	.6141
Judged Achievement	3.4014	.6172
Satisfaction With One's College	3.4158	.7144
Academic Change-Press	1.9307	.2559
Prestige Differentials		
PD 1: Friend's Program	-.7457	3.1586
PD 2: Friend's Suggestion	-.8940	3.3932
PD 3: Faculty Suggestion	-.6680	2.9914
PD 4: Parent Suggestion	-.9073	3.4496
PD 5: Intended Year Ago	-.8409	3.4753
PD 6: Most Interesting	-1.5601	4.9460
Work Values Inventory		
1: Creativity	12.9547	1.8668
2: Management	11.0113	2.0467
3: Achievement	13.4728	1.7411
4: Surroundings	11.8294	2.0373
5: Supervisory Relations	11.3114	2.2708
6: Way of Life	11.7435	1.9901
7: Security	11.5392	2.2183
8: Associates	12.5741	2.1007
9: Esthetics	9.8938	2.2969
10: Prestige	12.5356	2.3028
11: Independence	12.5821	2.1524
12: Variety	12.2406	2.3339
13: Economic Returns	8.7086	2.7200
14: Altruism	11.4366	2.3460
15: Intellectual Stimulation	12.2284	2.0656

Measures which were derived from the Junior College Student Inventory by combining various items, including the Student Preference Scales, were subjected to reliability study. Reliability coefficients were computed for the total sample of 9610 students. The results for selected JCSI variables are given in Table 22. The reliability of the Work Values Inventory scales is not reported here but may be found in the published paper by Hendrix and Super (1968).

TABLE 22

Reliability Estimates* of Selected Scales Derived from the Junior College Student Inventory (JCSI)

SCALE	RELIABILITY
S1: Scholarship and Intellectual Environment	.92
S2: Sociability	.91
Likelihood of Academic Success	.91
Satisfaction With One's College	.78
Academic Change-Press	.96
Judged Achievement	.86
Composite Occupational Prestige (used to calculate differentials between program means)	.86

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*Reliability coefficients were computed by means of Kuder-Richardson formula #21.

CHAPTER 5

Part I Findings: Analysis of Intermediate Criteria

The initial analyses were conducted to identify relationships between various sets of predictor variables and ten intermediate criterion variables. The latter measures were termed intermediate criterion variables since the theoretical considerations underlining this study indicate that they are potentially related to and very likely affected by predictor variables, such as college environments and community characteristics. In a subsequent section of the analysis, these intermediate criterion variables will be considered as additions to the predictor battery since they, in turn, are potentially related to and assist in the determination of final outcome variables, such as program completion and employment status.

Tables 23 and 24 present the means and standard deviations on the variables for all students for which complete and usable JCSI information was available. The intermediate criteria are listed first. These consist of Likelihood of Success (LS), Judged Achievement (JA), Satisfaction with College (SC), Change Press (CP), and the six Prestige Differentials (PD). The remaining variables, in Table 24, constitute the predictor battery and consist of mean scores at the colleges for the four environmental scales (E), 13 Community Indices (C), and the two Faculty Preference Scales (F). Scores for each individual student were used for the two Student Preference Scales (S), the 15 Work Values Inventory (WVI) scales, the three GATB subtests (G), the item indicating the decile for parents' occupation (PI), and the index indicating parents' educational level (P2). Table 25 indicates the classification of these students by

TABLE 23

MEANS AND STANDARD DEVIATIONS*

Intermediate Criteria	Mean	Standard Deviation
Likelihood of Success	2.6134	.6141
Judged Acheivement	3.4014	.6172
Satisfaction with College	3.4158	.7144
Change Press	1.9307	.2559
PD1 - Friends' Program	-.7457	3.1586
PD2 - Friends' Suggestion	-.8940	3.3932
PD3 - Faculty Suggestion	-.6680	2.9914
PD4 - Parents' Suggestion	-.9073	3.4496
PD5 - Intended Year Ago	-.8409	3.4753
PD6 - Most Interesting	-1.5601	4.8460

*Total sample of 9610

TABLE 24

Means and Standard Deviations*

Predictor Variables	Mean	Standard Deviation
E1 - Conventional Conformity	53.7063	11.1178
E2 - Internalization	22.0054	4.8424
E3 - Maturation	44.7571	4.7523
E4 - Humanism	13.4615	4.6992
S1 - Scholarship & Intellectual Achievement	59.5126	7.8132
S2 - Sociability	99.2110	11.2379
F1 - Students	80.1878	91.8249
F2 - Liberal Arts	53.9742	3.3373
C1 - Class	71.7761	24.4593
C2 - Higher Education	6.8524	1.6042
C3 - Mobility	- 7.4367	4.1312
C4 - Marital Status	50.0737	7.6292
C5 - Economic & Racial Descrimination	- 3.8968	15.3195
C6 - Industrial Unionization	439.2851	235.8155
C7 - Imbalance in Housing	- 16.0702	13.9307
C8 - Young Families	- 43.1105	19.3203
C9 - Suburban Areas	5145.5034	3216.0815
C10- Large Farms	- 221.6123	38.89617
C11- Consumption	2010.8341	322.0123
C12- Income	27.2155	25.0490
C13- Urbanization	35.3098	297.5403
WVI-1 - Altruism	11.4366	2.3460
WVI- 2 - Esthetics	9.8938	2.2969
WVI- 3. Creativity	12.9547	1.8668

Table 24 (Continued)

Predictor Variables	Mean	Standard Deviation
WVI-4 - Intellectual Stimulation	12.2284	2.0656
WVI-5 - Independence	12.5821	2.1524
WVI-6 - Achievement	13.4728	1.7411
WVI-7 - Prestige	12.5356	2.3028
WVI-8 - Management	11.0113	2.0467
WVI-9 - Economic Returns	7.7086	2.7200
WVI-10 - Security	11.5392	2.2183
WVI-11 - Surroundings	11.8294	2.0373
WVI-12 - Supervisory Relations	11.3114	2.2708
WVI-13 - Associates	12.5744	2.1007
WVI-14 - Variety	12.2406	2.3339
WVI-15 - Way of Live	11.7435	1.9901
G1 - Arithmetic Reasoning(GATB)	13.0365	2.8227
G2 - 3-D Space (GATB)	19.8682	5.6779
G3 - Tool Matching (GATB)	30.9840	5.8972
P1 - Parents' Occupation	5.0322	2.0695
P2 - Parents' Education	4.3801	1.9664

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*For more complete titles and descriptions of the variables listed in Table 24, refer to Chapter 4, Instruments and Variables for Analysis.

by type of program at entrance to college (obtained during the testing period, Fall, 1966) and by sex.

Table 25

SAMPLE OF STUDENTS

	No Program	Technical	Academic	Total
Male	827	3563	1426	5816
Female	543	1832	1419	3794
Total	1370	5395	2845	9610

The analyses are reported beginning with Table 26. A significance level of .001 was selected since, in general, the relationships uncovered were relatively small. Due to the relatively large sample size, alpha levels would have permitted the detection of relationships with statistical but more limited practical significance.

Since the primary predictor variables were the four Junior College Environment Scales, Table 26 shows the results of a multiple regression analysis using these as four predictors with each of the ten intermediate criterion variables. Eight of the multiple correlation coefficients are statistically significant. Ten of the individual correlation coefficients between an environment scale and one of the criterion measures are significant. In addition, the individual regression coefficients for each environmental scale were tested for statistical significance to see if the independent contribution of each environment scale, in the presence of the other three scales, accounted for a significant amount of the variance in the criterion measure. The results of these analyses indicate that higher scores on E1 - Conventional Conformity are associated with decreased Likelihood of Success, increased Satisfaction with College, and a negative Prestige Differential (PDI), indicating that students report their friends in programs with lower prestige. The inpendent contribution of E1 - Conventional Conformity does not hold up in the presence of the other three environmental scales. Higher scores on E2 - Internalization are associated with decreased Likelihood of Success and lower Change Press (pressure for lesser educational attainment), and lower Prestige Differentials for faculty (PD3) and parents' suggestions (PD4) (suggested programs having lower prestige than the student's current program). The independent contribution of E2 - Internalization holds up in the presence of the other three environment variables. Higher environmental measures for E3 - Maturation are associated with lower Change Press (for less education attainment) and higher Prestige Differentials for faculty (PD3) and parent (PD4) suggestions (suggested programs possessing greater prestige than the one the student is currently reporting). The independent contribution for change press does not hold up in the presence of the other three scales, whereas for the prestige differentials the zero-order correlations are not significant but the partial regression coefficients are significant. Finally, higher scores on E4 - Humanism are associated with greater Likelihood of Success, lower Satisfaction with College, lower Prestige Differentials for friends (PD2), faculty (PD3), and parents (PD4) (suggested programs possessing lower prestige than a student's current program) and higher prestige differentials for the program the student finds most interesting. (The most interesting program had higher prestige scores than the student's own program.) Only the zero-order correlation coefficients are significant for Likelihood of Success

Table 26

PREDICTION OF INTERMEDIATE CRITERIA FROM ENVIRONMENT SCORES

Criterion	Regression Coefficients						Correlation Coeeficients			
	Constant	E_1	E_2	E_3	E_4	Multiple R	E_1	E_2	E_3	E_4
Likelihood of Success (LS)	2.732	-.002	-.007*	-.002	.002	.076**	-.058**	-.066	-.004	.047**
Judged Achievement (JA)	3.416	.002	-.003	-.001	.002	.027	.010	-.015	-.004	.002
Satisfaction with College (SC)	3.217	.002	.0	.004	-.005	.055**	.048**	.030	.022	-.035*
Change Press (CP)	2.068	.000	-.003*	-.001	-.002	.068**	-.014	-.047*	-.051**	-.034
Friends' Program	.313	-.010	-.005	-.012	.0081	.052*	-.049**	-.034	-.026	-.023
Friends' Suggestion	-.655	-.006	-.030	.029	-.039*	.049*	-007	-.027	.001	-.021
Faculty Suggestion	-.739	-.012	-.050**	.060**	-.068**	.097**	-.009	-.046**	.019	-.033
Parents' Suggestion	-.596	-.006	-.042**	.033*	-.042*	.060**	-.009	-.038*	.002	-.019
Intended Year Ago	-.837	-.002	.009	-.009	.023	.031	-.019	-.003	.001	.027
Most Interesting	-2,369	.002	.051*	-.034	.081**	.068**	-.013	.024	.012	.050**

*Significant at .001 level
**Significant at .0001 level

and Satisfaction with College, whereas only the regression coefficients are significant for the Prestige Differentials for programs suggested by friends, faculty, and parents. For the most interesting program, both statistics are significant.

A more detailed regression analysis was then conducted for each of the Junior College Environment Scales. The results of these analyses are reported in Tables 27 through 30. This analysis used techniques derived from Bottenberg and Ward (1963). A full regression model was constructed for each criterion variable using as predictors one of the Junior College Environment Scales and all other concomitant variables. For example, Table 27 reports the ten regression models (regression coefficients for each variable, regression constant, and multiple R) using the following predictor variables. Variables 1 through 6 are categorical variables indicating membership in the six cells identified in Table 25. For example, Variable 1 contains a 1 if the corresponding criterion score is for a male undecided student, zero otherwise. Variables 2 through 6 similarly indicate classification by male-occupational, male-transfer, female-undecided, female-occupational, female-transfer. Variable 7 contains the associated E1 - Conventianal Conformity scores; Variables 8 and 9 contain the Student Preference scores for Intellectual and Scholarly Environment (S1) and Sociability (S2), Variables 10 and 11 contain the Faculty Preference Scale values for F1 (Students) and F2 (Liberal Arts), Variables 12 through 24 contain the Community Characteristics Index scores, Variables 25 through 39 contain the Work Values Inventory scores, and Variables 40 through 42 contain the three GATB subtests -- Arithmetic Reasoning (G1), 3-D Space (G2), and Tool Matching (G3). Variable 43 contains the decile SES equivalent of the parent or guardian's occupatinn, and Variable 44 contains the index number corresponding to the parents' or guardians' educational level. The final two rows in Table 27 report the regression constant for each equation and the resulting multiple R.

Tables 28, 29, and 30 report the regression equations for each criterion variable with the same predictors, except for the substitution, in turn, of the remaining three junior college environment scale scores. A limited number of hypotheses, some rather general in nature, were then tested by placing restrictions on the full regression model. The summary results of these tests are indicated in Tables 31 through 34. An appropriate procedure for testing hypotheses in this way is to compare the multiple R^2 for the full model with the R^2 of the restricted model which results from restrictions placed on the full model. The difference or reduction in R^2 from the full to the restricted model can be tested for statistical significance with the F distribution. Tables 31 through 34 report for each of these hypotheses and for each criterion variable, the R^2 difference and indicate if this is significant at the .001 or .0001 levels. The first six hypotheses reported in Tables 31 through 34 examine the gross contribution of six different sets of variables to each criterion variable, in the presence of a Junior College Environment Score, all other concomitant variables and the classification by program type and sex. These hypotheses do not examine the individual relationship of individual scale scores with the criteria. Such analyses will be reported for final outcome and in additional studies beyond the scope of this report. These hypotheses were tested by hypothesizing that the population regression coefficients for the different sets of variables are zero. When this restriction is placed on the full models reported in Tables 27 through 30, this in effect drops these variables from the equation. If this loss of information

Table 27

REGRESSION ANALYSIS FOR E1 - CONVENTIONAL CONFORMITY

Field Model

Criteria and Coefficients

Categorical vectors (see text)

	LS	JA	SC	CP	PD1
Variable	B	B	B	B	B
1:	.0089	.0097	-.0367	-.0011	-.4827
2	0.0000	.0486	.0018	-.0080	-.1598
3	.0067	-.0244	-.0331	.0047	-1.8213
4	-.1906	-.0450	.0813	.0034	-.1762
5	-.1748	.0101	.1226	.0073	.1262
6	-.1763	-.1409	.0988	.0252	-1.3065
7: (E 1)	-.0037	-.0013	-.0029	.0012	-.0152
8: (SPS 1)	.0077	.0116	.0147	.0030	-.0043
9: (SPS 2)	-.0025	-.0004	-.0016	-.0006	0.0000
10: (FPS 1)	.0243	.0260	.0044	.0033	-.0330
11: (FPS 2)	.0080	.0174	.0093	.0038	-.0058
12: (C 1)	-.0120	.0035	.0074	-.0021	-.0063
13: (C 2)	-.0031	-.0030	.0080	.0028	-.0097
14: (C 3)	-.0106	-.0081	-.0042	-.0060	.0541
15: (C 4)	.0221	.0065	-.0045	.0055	.0274
16: (C 5)	-.0098	-.0011	.0040	.0022	-.0179
17: (C 6)	0.0000	-.0039	.0213	-.0038	.0092
18: (C 7)	.0150	.0013	.0043	-.0002	-.0159
19: (C 8)	-.0022	.0053	-.0053	.0021	.0038
20: (C 9)	0.0000	.0009	-.0190	.0016	-.0416
21: (C10)	-.0004	-.0097	-.0181	-.0025	0.0000
22: (C11)	.0036	0.0000	-.0105	-.0014	.0141
23: (C12)	-.0108	.0059	.0139	0.0000	-.0077
24: (C13)	.0230	.0540	.0286	.0068	.0130
25: (WVI 1)	-.0031	-.0008	.0018	.0000	-.0095
26: (WVI 2)	.0126	-.0042	.0154	.0060	-.0607
27: (WVI 3)	-.0114	-.0011	-.0106	.0039	.0412
28: (WVI 4)	.0052	-.0008	.0023	.0013	-.0243
29: (WVI 5)	-.0004	-.0004	-.0029	-.0006	-.0009
30: (WVI 6)	.0000	-.0001	-.0002	-.0000	.0005
31: (WVI 7)	-.0004	-.0026	.0005	-.0020	-.0375
32: (WVI 8)	-.0000	.0020	.0007	.0041	.0045
33: (WVI 9)	0.0000	.0000	-.0000	-.0000	.0003
34: (WVI10)	-.0000	.0000	-.0001	-.0000	-.0003
35: (WVI11)	.0001	.0000	.0000	.0001	-.0009
36: (WVI12)	0.0000	-.0007	-.0065	-.0012	.0152
37: (WVI13)	.0000	0.0000	.0002	.0000	-.0027
38: (WVI14)	-.0014	-.0009	-.0168	.0097	.0226
39: (WVI15)	-.0004	-.0053	-.0170	.0019	.0212
40: (GATB1)	.0218	.0109	.0040	.0052	.0216
41: (GATB2)	.0144	.0092	.0026	-.0002	.0091
42: (GATB3)	-.0022	.0017	.0004	.0017	-.0084
43: (P 1)	.0068	.0018	-.0047	.0050	0.0000
44: (P 2)	.0174	.0064	.0032	.0119	0.0000
45: Reg.Con.	1.3420	1.8205	4.4087	.5233	-.3933
46: Mult. R	.3692	.3767	.2970	.2494	.2589

Table 27 (continued)

REGRESSION ANALYSIS FOR EI - CONVENTIONAL CONFORMITY

Categorical vectors (see text)

V		PD2 B	PD3 B	PD4 B	PD5 B	PD6 B
1		-.7444	-1.0159	-.7609	-.6356	-.1697
2		-.1184	-.3991	-.2826	-.1664	.1845
3		-2.6317	-2.7216	-2.5676	-1.3163	-1.3904
4		-.5560	-.9235	-.9647	-.5809	0.0000
5		-.1986	-.3410	-.3155	-.0654	.5412
6		-2.6978	-2.7048	-2.8288	-1.2381	-1.1383
7:	(E 1)	-.0022	-.0149	-.0028	.0113	.0364
8:	(SPS 1)	-.0084	-.0045	-.0092	.0097	.0213
9:	(SPS 2)	.0005	-.0030	.0067	-.0086	-.0170
10:	(FPS 1)	0.0000	.0116	.0133	0.0000	.0226
11:	(FPS 2)	-.0341	-.0168	-.0341	-.0148	.0228
12:	(C 1)	-.0097	.0524	.0021	.0090	.0036
13:	(C 2)	.0274	.0248	.0577	-.0050	.0510
14:	(C 3)	.0461	.0324	.0543	.0595	-.0092
15:	(C 4)	-.0340	-.0465	-.0810	-.0315	-.0369
16:	(C 5)	-.0291	.0056	0.0000	-.0361	.0146
17:	(C 6)	.0112	.0124	.0027	.0385	-.0509
18:	(C 7)	-.0363	-.0278	-.0376	-.0382	-.0046
19:	(C 8)	-.0050	-.0233	.0294	0.0000	-.0094
20:	(C 9)	-.0136	-.0188	0.0000	0.0000	.0058
21:	(C10)	.0067	.0108	.0189	0.0000	-.0716
22:	(C11)	.0236	.0267	-.0281	0.0000	-.0703
23:	(C12)	-.0059	-.0362	-.0337	-.0147	0.0000
24:	(C13)	.0082	-.0292	-.0057	.0104	.0785
25:	(WVI 1)	-.0061	-.0049	-.0067	-.0055	-.0340
26:	(WVI 2)	-.1817	-.2619	-.1850	-.1214	-.4022
27:	(WVI 3)	.0717	.1074	.0917	.0040	.1106
28:	(WVI 4)	.0128	.0084	.0246	.0046	-.0142
29:	(WVI 5)	-.0017	-.0008	-.0028	.0013	.0131
30:	(WVI 6)	.0006	.0011	.0007	.0004	.0001
31:	(WVI 7)	-.0383	-.0553	-.0488	.0003	.0008
32:	(WVI 8)	.0375	.0535	.0531	-.0013	.0114
33:	(WVI 9)	-.0000	-.0002	0.0000	.0000	.0000
34:	(WVI10)	.0002	.0005	.0007	.0001	.0005
35:	(WVI11)	.0008	.0019	.0009	.0003	-.0001
36:	(WVI12)	0.0000	-.0140	0.0000	.0145	.0710
37:	(WVI13)	-.0006	.0010	-.0002	-.0012	-.0017
38:	(WVI14)	.0431	.0121	.0795	.0494	.1995
39:	(WVI15)	.0206	.0174	.0100	.0153	.1093
40:	(GATB1)	0.0000	-.0125	-.0020	.0234	.0284
41:	(GATB2)	.0091	.0119	.0148	0.0000	.0123
42:	(GATB3)	-.0092	-.0077	-.0034	-.0061	-.0090
43:	(P1)	-.0172	-.0271	-.0391	-.0042	0.0000
44:	(P2)	-.0310	-.0357	-.0057	-.0169	-.0275
45:	Reg.Con.	-2.5309	1.5039	-5.4088	-5.6784	-18.6232
46:	Mult. R	.3515	.3886	.3438	.1686	.1961

Table 28*

REGRESSION ANALYSIS FOR E 2 - INTERNALIZATION

Criteria and Coefficients

Categorical vectors (see text)

		*LS	JA	SC	CP	PDI
V		B**	B	B	B	B
1		0.0000	0.0000	-.0383	0.0000	-.3470
2		0.0000	.0464	0.0000	-.0070	0.0000
3		0.0000	-.0252	-.0495	0.0000	-1.6601
4		-.1770	-.0373	.0737	0.0000	0.0000
5		-.1631	0.0000	.1131	0.0000	.3232
6		-.1544	-.1319	.0849	.0234	-1.1872
7	(E 2)	-.0044	0.0000	0.0000	-.0017	-.0066
8:		.0067	.0110	.0151	.0032	0.0000
9:		-.0022	0.0000	-.0016	-.0006	0.0000
10:		.0265	.0288	.0038	.0024	-.0462
11:		.0069	.0152	.0083	.0035	0.0000
12:		-.0124	0.0000	.0043	0.0000	0.0000
13:		0.0000	0.0000	.0078	.0022	0.0000
14:		-.0056	-.0065	-.0036	-.0060	.0426
15:		.0188	.0042	0.0000	.0055	0.0000
16:		-.0124	0.0000	0.0000	.0014	0.0000
17:		0.0000	-.0036	.0162	-.0023	0.0000
18:		.0140	0.0000	.0041	0.0000	0.0000
19:		0.0000	.0056	0.0000	.0016	0.0000
20:		0.0000	0.0000	-.0236	0.0000	-.0284
21:		0.0000	-.0098	-.0181	-.0024	0.0000
22:		0.0000	0.0000	-.0066	0.0000	0.0000
23:		-.0126	.0058	.0159	0.0000	0.0000
24:		.0240	.0541	.0297	.0067	0.0000
25:		-.0012	0.0000	0.0000	0.0000	-.0036
26:		0.0000	-.0144	0.0000	.0032	-.0513
27:		-.0073	0.0000	0.0000	0.0000	0.0000
28:		.0039	-.0010	0.0000	0.0000	0.0000
29:		0.0000	0.0000	-.0014	-.0006	-.0067
30:		0.0000	-.0000	-.0001	0.0000	.0007
31:		0.0000	0.0000	0.0000	0.0000	-.0131
32:		0.0000	0.0000	.0006	.0010	0.0000
33:		0.0000	0.0000	0.0000	0.0000	0.0000
34:		-.0001	0.0000	-.0001	-.0000	-.0001
35:		0.0000	0.0000	-.0001	0.0000	0.0000
36:		0.0000	0.0000	-.0019	-.0007	.0088
37:		0.0000	.0000	0.0000	0.0000	-.0005
38:		0.0000	0.0000	-.0073	.0021	0.0000
39:		0.0000	-.0019	-.0050	0.0000	-.0225
40:		.0239	.0122	.0034	.0052	.0259
41:		.0149	.0097	.0028	0.0000	.0062
42:		-.0037	.0014	0.0000	.0015	-.0064
43:		.0054	0.0000	0.0000	.0051	0.0000
44:		.0184	.0083	0.0000	.0124	0.0000
45:	Reg.Con:	1.3502	1.5610	3.2747	1.3709	.8641
46:	Mult. R	.3662	.3742	.2915	.2421	.2481

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*For an identification of the variables in the left-hand column (V column), see Variables column of Table 27 and, also, the description of variables presented in Chapter 4, Instruments and Variables for Analysis.

Table 28 (continued)

REGRESSION ANALYSIS FOR E2 - INTERNALIZATION

Categorical vectors (see text)

	PD2	PD3	PD4	PD5	PD6
V	B	B	B	B	B
1:	-.6104	-.6426	-.5132	-.5846	0.0000
2:	0.0000	0.0000	0.0000	-.0880	.2513
3:	-2.5160	-2.4138	-2.3425	-1.2859	-1.4649
4:	-.4975	-.6788	-.7522	-.5139	0.0000
5:	-.0925	0.0000	0.0000	0.0000	.5530
6:	-2.6643	-2.3763	-2.5648	-1.1628	-1.2482
7: (E 2)	0.0000	-.0211	-.0178	.0106	.0176
8:	-.0096	0.0000	-.0069	.0092	.0164
9:	0.0000	-.0044	.0059	-.0086	-.0184
10:	0.0000	0.0000	0.0000	0.0000	0.0000
11:	-.0286	-.0168	-.0166	0.0000	0.0000
12:	0.0000	.0357	0.0000	0.0000	0.0000
13:	.0023	.0224	.0342	0.0000	.0366
14:	.0294	.0334	.0377	.0512	0.0000
15:	-.0211	-.0242	-.0513	-.0263	0.0000
16:	-.0158	0.0000	0.0000	-.0311	0.0000
17:	0.0000	0.0000	0.0000	.0259	-.0302
18:	-.0427	-.0306	-.0233	-.0521	0.0000
19:	0.0000	0.0000	.0172	0.0000	0.0000
20:	0.0000	0.0000	0.0000	0.0000	0.0000
21:	0.0000	0.0000	.0163	0.0000	-.0520
22:	0.0000	.0169	-.0169	0.0000	-.0895
23:	0.0000	-.0355	-.0460	0.0000	0.0000
24:	0.0000	-.0282	0.0000	0.0000	.0988
25:	0.0000	0.0000	0.0000	0.0000	0.0000
26:	-.0883	-.1696	-.0839	-.0807	-.3465
27:	0.0000	.0287	0.0000	0.0000	.0298
28:	.0113	0.0000	.0101	0.0000	0.0000
29:	-.0084	-.0065	-.0066	0.0000	0.0000
30:	.0004	.0008	.0003	0.0000	0.0000
31:	0.0000	-.0082	-.0037	0.0000	0.0000
32:	0.0000	0.0000	.0035	0.0000	0.0000
33:	0.0000	0.0000	0.0000	0.0000	0.0000
34:	0.0000	0.0000	.0001	.0001	.0004
35:	.0002	.0002	.0002	.0002	0.0000
36:	0.0000	0.0000	0.0000	.0083	.0152
37:	-.0006	-.0007	-.0005	-.0003	-.0003
38:	.0198	0.0000	.0545	.0482	.0575
39:	0.0000	.0183	0.0000	0.0000	0.0000
40:	0.0000	-.0144	0.0000	.0194	.0236
41:	.0082	.0075	.0106	0.0000	0.0000
42:	-.0071	-.0063	0.0000	0.0000	0.0000
43:	0.0000	-.0206	-.0449	0.0000	0.0000
44:	-.0422	-.0372	0.0000	-.0186	0.0000
45: Reg.Con.	.8599	1.2774	-3.9565	-3.9949	-3.0260
46: Mult. R	.3455	.3775	.3357	.1644	.1860

Table 29*

REGRESSION ANALYSIS FOR E3 - MATURATION

Full Model

Criteria and Coefficients

Categorical vectors (see text)

	IS	JA	SC	CP	PD1
V	B*	P	B	B	B
1:	0.0000	0.0000	-.0391	0.0000	-.3484
2:	0.0000	.0464	0.0000	-.0069	0.0000
3:	0.0000	-.0252	-.0498	0.0000	-1.6667
4:	-.1774	-.0373	.0741	0.0000	0.0000
5:	-.1644	0.0000	.1161	0.0000	.3245
6:	-.1548	-.1318	.0854	.0241	-1.1920
7:(E 3)	0.0000	-.0017	-.0030	-.0026	0.0000
8:	.0067	.0110	.0150	.0033	0.0000
9:	-.0022	0.0000	-.0016	-.0007	0.0000
10:	.0268	.0287	.0040	.0021	-.0464
11:	.0071	.0152	.0084	.0036	0.0000
12:	-.0124	0.0000	.0043	0.0000	0.0000
13:	0.0000	0.0000	.0078	.0023	0.0000
14:	-.0053	-.0065	0.0000	-.0057	.0428
15:	.0185	.0045	0.0000	.0055	0.0000
16:	-.0124	0.0000	0.0000	.0013	0.0000
17:	0.0000	-.0037	.0163	-.0027	0.0000
18:	.0141	0.0000	.0042	0.0000	0.0000
19:	0.0000	.0056	-.0034	.0016	0.0000
20:	0.0000	0.0000	-.0238	0.0000	-.0285
21:	0.0000	-.0098	-.0180	-.0023	0.0000
22:	0.0000	0.0000	-.0066	0.0000	0.0000
23:	-.0125	.0058	.0159	0.0000	0.0000
24:	.0240	.0541	.0298	.0067	0.0000
25:	-.0011	-.0005	0.0000	0.0000	-.0036
26:	0.0000	-.0144	0.0000	.0038	-.0515
27:	-.0045	0.0000	-.0023	0.0000	0.0000
28:	.0041	-.0009	0.0000	0.0000	0.0000
29:	0.0000	0.0000	-.0014	-.0006	-.0067
30:	.0001	-.0000	-.0000	0.0000	.0007
31:	0.0000	0.0000	0.0000	0.0000	-.0131
32:	0.0000	0.0000	0.0000	.0008	0.0000
33:	0.0000	.0000	0.0000	0.0000	0.0000
34:	-.0001	0.0000	-.0001	-.0000	-.0001
35:	0.0000	0.0000	-.0001	0.0000	0.0000
36:	0.0000	0.0000	-.0022	-.0008	.0088
37:	0.0000	0.0000	0.0000	0.0000	-.0005
38:	0.0000	0.0000	-.0094	.0033	0.0000
39:	.0038	0.0000	-.0064	0.0000	-.0226
40:	.0240	.0122	.0031	.0053	.0260
41:	.0150	.0097	.0029	0.0000	.0062
42:	-.0037	.0014	0.0000	.0016	-.0064
43:	.0054	0.0000	0.0000	.0052	0.0000
44:	.0182	.0083	0.0000	.0126	0.0000
45:Reg.Con.	1.0135	1.5396	3.6099	1.3416	.7248
46:Mult. R	.3656	.3746	.2924	.2434	.2479

*For an identification of the variables in the left-hand column (V column) see Variables column of Table 27 and, also, the description of variables presented in Chapter 4, Instruments and Variables for Analysis.

Table 29 (continued)

REGRESSION ANALYSIS FOR E3 - MATURATION

Categorical vectors (see text): 1–6

	PD2	PD3	PD4	PD5	PD6
V	B	B	B	B	B
1:	-.6123	-.6640	-.5145	-.5808	0.0000
2:	0.0000	-.0822	0.0000	-.0833	.2451
3:	-2.5242	-2.4939	-2.3487	-1.2775	-1.4289
4:	-.4991	-.7013	-.7542	-.5106	0.0000
5:	-.1126	0.0000	0.0000	0.0000	.5394
6:	-2.6730	-2.4442	-2.5734	-1.1552	-1.2175
7: (E 3)	.0188	.0452	.0170	.0104	0.0000
8:	-.0101	-.0067	-.0068	.0091	.0160
9:	0.0000	0.0000	.0058	-.0085	-.0179
10:	0.0000	0.0000	0.0000	0.0000	0.0000
11:	-.0289	0.0000	0.0000	0.0000	0.0000
12:	0.0000	.0353	0.0000	0.0000	0.0000
13:	0.0000	.0219	.0345	0.0000	.0341
14:	.0287	.0361	.0378	.0509	0.0000
15:	0.0000	-.0221	-.0514	-.0256	0.0000
16:	0.0000	0.0000	0.0000	-.0309	0.0000
17:	0.0000	0.0000	0.0000	.0257	-.0310
18:	-.0429	-.0306	-.0244	-.0518	0.0000
19:	0.0000	-.0137	0.0000	0.0000	0.0000
20:	0.0000	-.0216	0.0000	0.0000	0.0000
21:	0.0000	0.0000	.0164	0.0000	-.0508
22:	0.0000	.0170	0.0000	0.0000	-.0873
23:	0.0000	-.0385	-.0461	0.0000	0.0000
24:	0.0000	-.0282	0.0000	0.0000	.0963
25:	0.0000	0.0000	0.0000	0.0000	0.0000
26:	-.0882	-.0863	-.0644	-.0802	-.3741
27:	0.0000	.0403	0.0000	0.0000	.0290
28:	.0079	0.0000	.0117	0.0000	0.0000
29:	-.0084	-.0073	-.0067	0.0000	0.0000
30:	.0004	.0005	.0003	0.0000	0.0000
31:	-.0034	-.0097	0.0000	0.0000	0.0000
32:	.0026	.0145	.0047	0.0000	0.0000
33:	0.0000	-.0000	0.0000	0.0000	0.0000
34:	0.0000	0.0000	.0001	.0001	.0004
35:	.0003	.0007	.0003	.0002	0.0000
36:	0.0000	-.0014	0.0000	.0083	.0136
37	-.0006	-.0006	-.0006	-.0003	-.0003
38:	0.0000	.0598	.0546	.0479	.0561
39:	0.0000	.0474	.0216	0.0000	0.0000
40:	0.0000	0.0000	0.0000	.0180	.0217
41:	.0075	.0080	.0103	0.0000	0.0000
42:	-.0068	-.0073	0.0000	0.0000	0.0000
43:	0.0000	-.0227	-.0450	0.0000	0.0000
44:	-.0426	-.0393	0.0000	-.0185	0.0000
45:Reg.Cons	-.2746	-.2343	-6.8068	-4.2405	-2.2735
46:Mult. R	.3462	.3840	.3364	.1643	.1849

Table 30*

REGRESSION ANALYSIS FOR E4 - HUMANISM

Full Model

Criteria and Coefficients

Categorical vectors (see text)

	LS	JA	SC	CP	PD1
V	B**	B	B	B	B
1:=	0.0000	0.0000	-.0396	0.0000	-.3566
2:	0.0000	.0465	0.0000	-.0062	0.0000
3:	0.0000	-.0223	-.0490	0.0000	-1.7059
4:	-.1774	-.0400	.0731	0.0000	0.0000
5:	-.1644	0.0000	.1152	0.0000	.2312
6:	-.1548	-.1320	.0841	.0228	-1.2200
7: (E 4)	0.0000	-.0032	-.0030	-.0022	.0102
8:	.0067	.0110	.0151	.0033	0.0000
9:	-.0022	0.0000	-.0016	-.0007	0.0000
10:	.0268	.0288	0.0000	.0021	-.0475
11:	.0071	.0152	.0083	.0037	0.0000
12:	-.0124	0.0000	.0053	0.0000	0.0000
13:	0.0000	0.0000	.0077	.0023	0.0000
14:	-.0053	-.0063	0.0000	-.0056	.0438
15:	.0185	.0042	0.0000	.0057	0.0000
16:	-.0124	0.0000	0.0000	.0013	0.0000
17:	0.0000	-.0037	.0161	-.0027	0.0000
18:	.0141	0.0000	.0041	0.0000	0.0000
19:	0.0000	.0053	0.0000	.0016	0.0000
20:	0.0000	0.0000	-.0234	0.0000	-.0292
21:	0.0000	-.0098	-.0146	-.0024	0.0000
22:	0.0000	0.0000	-.0100	0.0000	0.0000
23:	-.0125	.0059	.0159	0.0000	0.0000
24:	.0240	.0547	.0294	.0068	0.0000
25:	-.0011	0.0000	0.0000	0.0000	-.0041
26:	0.0000	-.0144	0.0000	0.0000	-.0527
27:	-.0045	0.0000	0.0000	.0010	0.0000
28:	.0041	0.0000	0.0000	0.0000	0.0000
29:	0.0000	0.0000	-.0014	-.0006	-.0069
30:	.0001	-.0000	-.0001	0.0000	.0008
31:	0.0000	0.0000	.0009	0.0000	-.0142
32:	0.0000	0.0000	0.0000	.0010	0.0000
33:	0.0000	.0000	0.0000	-.0000	0.0000
34:	-.0001	0.0000	-.0001	-.0000	-.0001
35:	0.0000	0.0000	-.0001	0.0000	0.0000
36:	0.0000	0.0000	-.0018	-.0004	.0090
37:	0.0000	0.0000	0.0000	0.0000	-.0005
38:	0.0000	0.0000	-.0063	.0030	0.0000
39:	.0038	-.0020	-.0028	.0009	-.0232
40:	.0240	.0122	.0033	.0053	.0266
41:	.0150	.0097	.0028	0.0000	0.0000
42:	-.0037	.0016	0.0000	.0016	0.0000
43:	.0054	0.0000	0.0000	.0053	0.0000
44:	.0182	.0083	0.0000	.0126	0.0000
45:Reg.Con.	1.0135	1.5247	3.1025	1.2633	.5724
46:Mult. R	.3748	.3748	.2919	.2425	.2483

*For an identification of the variables in the left-hand column, (V column), see Variables column of Table 27 and, also, the description of variables presented in Chapter 4, Instruments and Variables for Analysis.

Table 30 (continued)

REGRESSION ANIAYSIS FOR E4 - HUMANISM

Categorical vectors (see text): rows 1–6

	PD2	PD3	PD4	PD5	PD6
V	B	B	B	B	B
1:	-.6124	-.6473	-.5123	-.5819	0.0000
2:	0.0000	0.0000	0.0000	-.0899	.2451
3:	-2.5243	-2.4313	-2.3386	-1.2798	-1.4289
4:	-.4991	-.6837	-.7509	-.5115	0.0000
5:	-.1131	0.0000	0.0000	0.0000	.5394
6:	-2.6731	-2.3921	-2.5595	-1.1574	-1.2175
7:	(E 4)-.0206	-.0206	-.0152	0.0000	0.0000
8:	-.0096	0.0000	-.0075	.0091	.0160
9:	0.0000	-.0050	.0043	-.0085	-.0179
10:	0.0000	0.0000	0.0000	0.0000	0.0000
11:	-.0287	-.0177	0.0000	0.0000	0.0000
12:	0.0000	.0342	0.0000	0.0000	0.0000
13:	0.0000	.0223	.0361	0.0000	.0341
14:	.0295	.0377	.0376	.0510	0.0000
15:	0.0000	-.0270	-.0512	-.0270	0.0000
16:	0.0000	0.0000	0.0000	-.0309	0.0000
17:	0.0000	0.0000	0.0000	.0258	-.0310
18:	-.0429	-.0288	-.0230	-.0519	0.0000
19:	0.0000	0.0000	0.0000	0.0000	0.0000
20:	0.0000	0.0000	0.0000	0.0000	0.0000
21:	0.0000	0.0000	.0179	0.0000	-.0508
22:	0.0000	.0165	0.0000	0.0000	-.0873
23:	0.0000	-.0357	-.0459	0.0000	0.0000
24:	0.0000	-.0247	0.0000	0.0000	.0963
25:	0.0000	0.0000	0.0000	0.0000	0.0000
26:	-.1342	-.1729	-.0912	-.0803	-.3741
27:	0.0000	.0282	0.0000	0.0000	.0290
28:	.0165	.0053	.0097	0.0000	0.0000
29:	-.0084	-.0056	-.0066	0.0000	0.0000
30:	.0006	.0009	.0003	0.0000	0.0000
31:	0.0000	-.0072	0.0000	0.0000	0.0000
32:	0.0000	.0026	0.0000	0.0000	0.0000
33:	0.0000	-.0000	0.0000	0.0000	0.0000
34:	0.0000	0.0000	.0001	0.0000	.0004
35:	.0002	.0003	0.0000	0.0000	0.0000
36:	0.0000	0.0000	.0033	.0083	.0136
37:	-.0006	-.0007	-.0005	-.0003	-.0003
38:	0.0000	.0254	.0544	.0480	.0561
39:	0.0000	.0393	.0210	0.0000	0.0000
40:	0.0000	-.0110	0.0000	.0181	.0217
41:	0.0000	.0062	.0118	0.0000	0.0000
42:	0.0000	-.0074	0.0000	0.0000	0.0000
43:	0.0000	-.0179	-.0448	0.0000	0.0000
44:	-.0423	-.0391	0.0000	0.0000	0.0000
45:Reg.Con.	.6793	-2.3630	-5.1329	-3.4980	-2.2735
46 Mult. R.	.3461	.3794	.3357	.1624	.1849

Table 31

SUMMARY OF HYPOTHESES TESTED WITH E1 - CONVENTIONAL CONFORMITY

Criteria and R^2 Difference

Hypotheses:	LS	JA	SC	CP	PD1
1. SPS :	.0073**	.0163**	.0191**	.0058**	.0001
2. WVI :	.0312**	.0711**	.0200**	.0111**	.0028
3. C Indices	.0053**	.0032**	.0084**	.0134**	.0122**
4. JPS	.0000	.0005	.0013	.0013	.0003
5. GATB	.0286**	.0122**	.0009	.0051**	.0006
6. SES	.0046**	.0006	.0002	.0125**	.0001
7. E1	.0008	.0001	.0006	.0003	.0002
8. Program	.0001	.0060**	.0006	.0008	.0427**
9. Sex	.0157**	.0031**	.0053**	.0008	.0029**
10. P x S Interaction	.0001	.0008	.0001	.0001	.0003

* Significant at .001 level
** Significant at .0001 level

Table 31 (continued)

SUMMARY OF HYPOTHESES TESTED WITH E1 - CONVENTIONAL CONFORMITY

Criteria and R^2 Difference

Hypotheses:	PD2	PD3	PD4	PD5	PD6
1. SPS	.0003	.0005	.0005	.0007	.0014
2. WVI	.0026	.0037*	.0032	.0023	.0033
3. C Indices	.0066**	.0148**	.0075**	.0045**	.0147**
4. FPS	.0001	.0001	.0008	.0002	.0017*
5. GATB	.0003	.0004	.0004	.0004	.0004
6. SES	.0006	.0012	.0006	.0001	.0001
7. E1	.0000	.0006	.0000	.0004	.0011
8. Program	.0951**	.1056**	.0826**	.0189**	.0183**
9. Sex	.0002	.0001	.0005	.0002	.0006
10. P x S Interaction	.0002	.0000	.0002	.0001	.0001

* Significant at .001 level ** Significant at .0001 level

Table 32

SUMMARY OF HYPOTHESES TESTED WITH E2 - INTERNALIZATION

Criteria and R^2 Difference

Hypotheses:	LS	JA	SC	CP	PD1
1. SPS	.0074**	.0161**	.0188**	.0062**	.0001
2. WVI	.0313**	.0701**	.0199**	.0114**	.0027
3. C Indices	.0047**	.0019	.0082**	.0100**	.0111**
4. FPS	.0007	.0000	.0003	.0014	.0001
5. GATB	.0305**	.0115**	.0009	.0054**	.0004**
6. SES	.0043**	.0001	.0000	.0118**	.0000
7. E2	.0001	.0001	.0000	.0007	.0011
8. Program	.0001	.0058**	.0004	.0011	.0422**
9. Sex	.0145**	.0031**	.0052**	.0007	.0013**
10. P x S Interaction	.0001	.0008	.0000	.0002	.0000

* significant at .001 level
**significant at .0001 level

Table 32 (continued)

SUMMARY OF HYPOTHESES TESTED WITH E2 - INTERNALIZATION

Hypotheses:	PD2	PD3	PD4	PD5	PD6
1. SPS	.0007	.0003	.0003	.0007	.0014
2. WVI	.0028	.0041*	.0019	.0027	.0047**
3. C Indices	.0049**	.0096**	.0038**	.0038*	.0109**
4. FPS	.0001	.0013	.0001	.0001	.0004
5. GATB	.0003	.0009	.0000	.0002	.0002
6. SES	.0008	.0006	.0006	.0001	.0000
7. E2	.0000	.0001	.0002	.0001	.0004
8. Program	.0969**	.1079**	.0853**	.0203**	.0196**
9. Sex	.0001	.0001	.0004	.0001	.0003
10. P x S Interaction	.0001	.0000	.0006	.0001	.0000

* significant at .001 level
** significant at .0001 level

Table 33

SUMMARY OF HYPOTHESES TESTED WITH E3 - MATURATION

Criteria and R^2 Difference

Hypotheses:	LS	JA	SC	CP	PD1
1. SPS	.0073**	,0165**	.0189**	.0061**	.0001
2. WVI	.0310**	.0709**	.0193**	.0109**	.0025
3. C Indices	.0047**	.0023	.0084**	.0099**	.0118**
4. FPS	.0004	0.0000	.0003	.0011	.0001
5. GATB	.0292**	.0122**	.0009	.0052**	.0006
6. SES	.0043**	.0004	0.0000	.0126**	0.0000
7. E3	0.0000	.0002	0.0000	.0003	.0005
8. Program	0.0000	.0061**	.0009	.0005	.0421**
9. Sex	.0151**	.0031**	,0057**	.0006	.0012
10. P x S Interaction	.0000	.0010	.0001	.0001	.0001

* significant at .001 level
** significant at .0001 level

Table 33 (continued)

SUMMARY OF HYPOTHESES TESTED WITH E3 - MATURATION

Hypotheses:	PD2	PD3	PD4	PD5	PD6
1. SPS	.0004	.0004	.0007	.0007	.0016**
2. WVI	.0024	.0030	.0031	.0018	.0026
3. C Indices	.0047**	.0089**	.0043**	.0038**	.0116**
4. FPS	.0001	.0020**	.0010	.0004	.0002
5. GATB	.0003	.0002	.0002	.0001	.0001
6. SES	.0005	.0009	.0005	0.0000	0.0000
7. E3	.0000	.0003	.0000	.0000	.0005
8. Program	.0970**	.1049**	.0861**	.0006**	.0193**
9. Sex	.0002	.0045	.0000	.0203	.0003
10. P x S Interaction	.0002	.0045	.0003	.0004	.0002

* significant at .00 level
** significant at .0001 level

Table 34

SUMMARY OF HYPOTHESES TESTED WITH E4 - HUMANISM

Criteria and R^2 Difference

Hypotheses:	LS	JA	SC	CP	PD1
1. SPS	.0073**	.0160**	.0191**	.0059**	.0002
2. WVI	.0309**	.070**	.0197**	.0111**	.0020
3. C Indices	.0047**	.0020	.0074**	.0098**	.0115**
4. FPS	,0004	0.0000	.0006	.0013	.0005
5. GATB	.0292**	.0016**	.0013	.0057**	.0001
6. SES	.0043**	.0005	0.0000	.0120**	0.0000
7. E4	.0000	.0002	.0001	.0008	.0018*
8. Program	.0000	.0060**	.0003	.0010	.0421**
9. Sex	.0151**	.0033**	.0050**	.0007	.0013
10. P x S Interaction	.0000	.0009	.0002	.0003	.0002

* significant at .001 level
** significant at .0001 level

Table 34 (continued)

SUMMARY OF HYPOTHESES TESTED WITH E4 - HUMANISM

Hypotheses:	PD2	PD3	PD4	PD5	PD6
1. SPS	.0004	.0000	.0006	.0007	.0008
2. WVI	.0019	.0039**	.0035	.0018	.0024
3. C Indices	.0052**	.0102**	.0047**	.0040**	.0099**
4. FPS	.0002	.0021**	.0007	.0003	.0000
5. GATB	.0004	.0019**	.0003	.0001	.0002
6. SES	.0006	.0013	.0006	0.0000	0.0000
7. E4	.0004	.0009	.0005	0.0000	.0001
8. Program	.0956**	.1077**	.0835**	.0197**	.0193**
9. Sex	.0001	.0005	.0005	.0002	.0003
10. P x S Interaction	.0001	.0005	.0013	.0002	.0002

* significant at .001 level
** significant at .0001 level

reduced the multiple R^2 significantly, then the set of variables may be said to make a significant contribution to the explanation of variance in the criterion.

The seventh hypothesis examined the independent contribution of the Junior College Environment Scales to the criterion, in the presence of all concomitant variables.

Since both the full and restricted model for this test included the six categorical vectors, a preliminary test was conducted to ascertain if the relationship between the environmental score and the criterion is the same within each of the six groups. This constitutes a test of the basic assumption for a covariance analysis, and was done by generating another model, which is not reported, which contained six separate environmental score vectors, one corresponding to each of the six categorical vectors. It was hypothesized that the coefficients for these six vectors were equal in the population. This restriction results in the models reported in Tables 27 through 30. This test was not rejected for any of the criteria related to any of the environmental scores.

The failure to reject the hypothesis described above permitted the examination of criterion differences due to program type, sex and the interaction of program by sex. The eighth hypothesis reported in Tables 31 through 34 was tested by placing the following restrictions on the coefficients of the first six variables, which indicate group membership: $a_1 = a_2$, $a_1 = a_3$, $a_2 = a_3$, $a_4 = a_5$, $a_4 = a_6$, and $a_5 = a_6$. (Are there differences between program types for students of the same sex and with the same (statistically controlled) concomitant variable scores?) The ninth hypothesis, which examined for differences between males and females in the same program type and with the same (statistically controlled) scores on concomitant variables, was tested by placing the following restrictions on the first six coefficients: $a_1 = a_4$, $a_2 = a_5$, and $a_3 = a_6$. These tests are analgous but not equivalent to double classification analysis of covariance tests. These tests are not qualified by significant interaction tests. (For further details consult Bottenberg and Ward,1963.)

The final hypothesis examined the interaction of program type and sex. This hypothesis tested the equality of differences between males and females in different program types, by placing the following restrictions: $a_1 - a_4 = a_2 - a_5 = a_3 - a_6$. This analysis of covariance interaction can be stated as follows: Are the differences between males and females the same for students within any given program type and with the same (statistically controlled) concomitant variable scores?

The first hypothesis tested examined the contribution of the two student preference scales (S1 - Intellectual and Scholarly Environment, S2 - Sociability), as a set of predictors. Examination of Tables 31 through 34 indicate that these two variables as a set account for a significant amount of variance on the first four criterion measures, in the presence of the other concomitant variables and each of the environmental scales. Although the independent relationship of each scale was not examined, investigation of Tables 27 through 30 indicate that S1 - Intellectual and Scholarly Environment is positively associated with higher scores on Likelihood of Success, Judged Achievement, Satisfaction with College, and Change Press (for higher academic aspiration). This confirms findings from many other studies, including the earlier 1967 report. (Hendrix, 1967) This indication is that students who prefer intellectual and scholarly environments tend to have greater confidence in their ability to succeed academically, judge themselves as achieving academically, are satisfied with college, and report pressures for higher academic aspiration. The regression coefficients for S2 - Sociability are much smaller in absolute value, and zero for judged achievement in the presence of environment scales E2 - Internalization, E3 - Maturation, E4 - Humanism. If tested independently, these small negative coefficients would probably not reach statistical significance. They indicate, however, that students who have a greater preference for sociable environments report less Likelihood of Success, less Satisfaction with College, and a press for lower academic aspirations.

The only other significant relationship between this pair of variables is for Prestige Differential 6 (for the program the student reports as most interesting) in the presence of environmental scale E3 - Maturation and the other concomitant variables. Examination of these coefficients in Table 29 indicate that they are approximately equal in size but in opposite directions. Students who report greater preferences for scholarly and intellectual environments also report that the programs they find most interesting have greater general prestige than the ones in which they are enrolled. The relationship for S2 - Sociability is just the reverse. As student reports greater preferences for sociable environments, the prestige differential between the program they consider most interesting and the one in which they are enrolled becomes lesser in value.

When the contribution of the 15 Work Values Inventory scales, as a set, is examined, it is found that they account for a significant amount of variance on the first four criterion measures in the presence of the other concomitant variables and all four environmental scales. In addition, in the presence of E1 - Conventional Conformity, E2 - Internalization, and E4 - Humanism, they also account for a significant amount of variance on Prestige Differential 3 (faculty and counselor's suggested programs). The relationships for individual scales are not examined, but the scales as a set are most effective in predicting the first two criterion measures (Likelihood of Success and Judged Achievement) where they account for approximately three percent and seven percent of the variance, respectively. These variables will be analyzed in more detail as predictors of final outcome. It is interesting to notice that they are most strongly related to the two self-report scales that are most task oriented, dealing respectively with success academically and achievement. In fact, as a predictor set, they account for more variance on these two criterion measures than any other set, even actual ability as indicated by the three GATB scores.

The next hypotheses examined the contribution of the thirteen community indices as a set. Examination of Tables 31 through 34 indicate that they account for a significant amount of variance on all of the criterion variables, in the presence of the other concomitant variables and each environmental scale, except for the second criterion variable in the presence of the E2 - Internalization, E3 - Maturation, and E4 - Humanism. Although significant in all but three instances, noted above, these variables as a set, account for generally one percent or less of the total variance.

The two Faculty Preference Scales, considered as a set, accounted for a significant amount of criterion variance in only three instances. This was for prestige differential 6 (most interesting program) in the presence of E1 - Conventional Conformity, and Prestige Differential 3 (faculty and counselor suggested programs) in the presence of E3 - Maturation and E4 - Humanism. Remembering that lower scores on these faculty preference scales indicate higher preference, the coefficients in in Tables 27, 29 and 30,indicate that in the presence of faculty members who tend to prefer friendly, scholarly, liberal arts environments, and serious academically interested students, students reported higher prestige differentials (indicating that faculty and counselor's suggest they change to programs with generally greater prestige than the one's in which they are enrolled) in the presence of E3 - Maturation, and E4 - Humanism, and greater prestige differentials (indicating higher relative prestige value for programs defined most interesting as compared to the one they are taking) in the presence of E1 - Conventional Conformity.

The three GATB tests, as a set, accounted for a significant amount of variance on the first, second, and fourth criterion measures (Likelihood of Success, Judged Achievement, and Change Press) in the presence of each environmental scale and other concomitant variables. In addition, in the presence of E4 - Humanism, they were also related to Prestige Differential 3 (faculty and counselor's suggested programs). The strongest relationships, in terms of proportion of variance, occur for Likelihood of Success and Judged Achievement, as was true for the Work Values Inventory. Examination of the coefficients in Tables 27 through 30 indicate that Arithmetic Reasoning is positively associated with the first three criterion measures. Students with greater ability in Arithmetic Reasoning report greater Likelihood of Success, and Judged Achievement and are exposed to a press for higher academic aspiration. 3-D Space appears to be strongly related only to Likelihood of Success and Judged Achievement, again positively. The relationships of 3-D Space with Change Press, and Tool-Matching with all three of these criterion measures, would not likely be significant by themselves. For the third Prestige Differential, in the presence of E4 - Humanism, Arithmetic Reasoning and Tool-Matching exhibit negative coefficients whereas 3-D Space exhibits a positive coefficient. If all three of these coefficients were significant individually, this would indicate that for students with higher Arithmetic Reasoning and Tool-Matching ability, faculty and counselors suggest programs with relatively less prestige than those in which the student is enrolled. Conversely, for students with higher 3-D Space scores, faculty and counselors tend to suggest programs with relatively greater prestige than those in which the students are currently enrolled.

The two indicators of socio-economic status (parent's or guardian's occupation and educational level) account for a significant amount of criterion variance for Likelihood of Success and Change Press, in the presence of all four environmental scales. Examination of the coefficients indicate that students from families with higher SES report greater Likelihood of Success and a pressure for greater academic aspiration. The stronger relationships occur for Educational Level (P2).

When the independent contribution of each junior college environment scale was examined by dropping it from the equation in the presence of all of the other concomitant variables, only one significant relationship was found. This was for E4 - Humanism and the first prestige differential (friends' program). The coefficient indicates that in schools with greater scores on Humanism students report that their friends are in programs with relatively greater prestige. It is interesting to compare this result with that in Table 26 which reports the individual correlation coefficient between E4 and PD1, and tests the independent contribution of E4 in the presence of the other three environmental scales only. Neither of these results were statistically significant. That is, this scale exhibits a significant relationship with PD1 only in the presence of the total set of concomitant variables.

The next hypothesis examined the relationship between program type using the complete set of concomitant variables, with separate analyses for each of the four environmental scales. This hypothesis could be stated as: Are there differences between criterion score means for students in different program types (undecided, occupational, and transfer) of the same sex and with the same (controlled by covariance) scores on the concomitant variables? Significant results were found for all six prestige differentials and judged achievement. Examination of the coefficients indicate that transfer students have lower judged achievement scores and occupational students have higher judged achievement scores, with the undecided students being in the middle. The pattern for all Prestige Differentials is consistent. Transfer students report the lowest prestige differentials, undecided students are in the middle, and occupational students report relatively higher prestige differentials. That is, transfer students report that their friends are in programs with relatively less prestige than their own, that the programs suggested by their friends, faculty and counselors, and parents possess relatively less prestige, the program they intended to enter a year before college and the one they find most interesting, also possess relatively less prestige than their own.

The above finding for the prestige differentials would be expected since the majority of the students in the sample were in occupational programs and in general these programs earned lower prestige scores. A number of explanations might be offered for the relationship with Judged Achievement. One might speculate that the instructional process is less efficient in the transfer type courses than in the occupational courses. One might also speculate that the subject matter is more difficult. Another speculation would be that the occupational students are more goal directed, that their programs are more related to immediate employment, job skills, etc.

A similar hypothesis was tested concerning differences between males and females. This could be stated as: Are there mean differences on the criteria between males and females in the same program and with the same (controlled statistically by covariance) scores on the concomitant variables? Significant relationships were found for the first three criterion measures in the presence of the concomitant variables in each environment scale. In addition, the first Prestige Differential (friends program) produced a significant difference in the presence of El - Conventional Conformity. For all four analyses, males indicate greater Likelihood of Success and Judged Achievement than females. Females, however, report greater Satisfaction with College than males. For the single relationship with Prestige Differatial 1, in the presence of El - Conventional Conformity, females report higher Prestige Differentials than males, indicating that the prestige discrepancy between a student's own program and that in which most of his friends are enrolled, is less for females than for males, although both are (on the average) negative.

This section has summarized the independent relationship of the environment scales with concomitant variables and found that only one significant relationship occurred. However, this relationship did not appear in the analyses which did not use the concomitant variables. In terms of criterion variance, the most promising set of variables appeared to be identified with the Work Values Inventory, especially on the Likelihood of Success and Judged Achievement measures. In another section of this report, the independent relationship of all variables with final outcome measures for the students will be examined by means of multiple discriminant analysis.

CHAPTER 6

Part II Findings

As described in Chapter 3, the sample of 24 public junior colleges, whose students served as the subjects in this study, was drawn from the original basic sample of one hundred 2-year colleges in a manner such as to provide an equitable distribution of institutions on the characteristic of "occupational achievement;" i.e., the number of students completing occupational programs at any college, this number expressed as a percentage of all students enrolled in occupational programs at that college. Consequently, it was not a primary requirement of the design of the study that a student sample be drawn which was strictly representative of the national population of students enrolled in public junior-community colleges. However, when a Chi-square goodness-of-fit comparison was performed between the current 24-college sample and the remaining 76 colleges in the base sample which were not selected for use in this study, only two relatively minor differences in sampling characteristics were found. (See Chapter 3, Tables 16 and 17 and related discussion.) Despite the special conditions placed on the project sample, it is not believed that the 9610 students for whom complete, scorable JCSI protocols were available differed appreciably from the national 2-year student population with respect to the salient variables under investigation.

Tables 35 and 36 show means and standard deviations for men and women students, respectively, on the full complement of 49 predictor variables, including the ten measures which served as intermediate criteria in the first phase of the study. (See Chapter 5.) Nineteen variables (four Junior College Environment Scales, two Faculty Preference Scales, and 13 Indices of Community Characteristics) are descriptive of the community and campus environments rather than of the students themselves and, hence, will not be discussed here. For a description of these instruments and their scoring procedures, the reader is referred to the previously completed companion study (Hendrix, 1967) and to Chapter 4, Instruments and Variables For Analysis in the present report.

Inspection of the data on the 30 student-generated variables in Tables 35 and 36 permits the construction of brief profiles of the background, academic self-perceptions, and work values of 2-year college men and women. In general, variable-by-variable comparsions between male and female students show only small differences. Since male-female contrasts on descriptor measures were not central to the aims of the overall study, confidence levels pertaining to such differences were not calculated and are not reported.

The fact that an ad hoc adaptation of the Student Preference Scales was made for specific use in this project means that external reference norms cannot be used to interpret the group means on these scales. The most meaningful interpretation comes from recalling that the S1 scale (preference for scholarly-intellectual environment) and S2 scale (preference for an environment emphasizing sociability) consist of a total of 48 items, each of which is scored on a 5-point range, a score of 1 indicating the strongest degree of preference and a score of 5 the lowest degree of preference. Thus, a neutral (intermediate) preference score for the 15 items on the unipolar S1 scale would be 15x3 = 45.0. Correspondingly, a neutral mean preference score for the 33 items on the S2 scale would be 33x3 = 99.0. A low group mean value in each case would indicate a strong group preference for the type of campus environment with which the scale deals. Inspection of Tables 35 and 36 reveals that both the men students (N=5924) and the women students (N=3686) tended to deny preference for a campus environment which emphasizes scholarly and intellectual values and activities. The rejection was somewhat greater for females ($\bar{X}$=57.87) than for males ($\bar{X}$=54.04). On the S2 scale (Sociability), both sexes yielded mean scores very close to the neutral value of 99.0, the mean preference for women students registering slightly stronger than that for men students.

The two Likelihood of Success variables provide subjective estimates of the student's academic self-confidence. Each item uses a 5-point scale. A group mean of 5.0 on either of the items would have meant that the students in question estimated their probability of program success as "almost certain" and a mean of 3.00 as "about average." The tabled results show that students of both sexes estimated their chances of success in their own 2-year college programs as somewhat below average, with female students being somewhat less confident about their prospects (male $\bar{X}$=2.70; female $\bar{X}$=2.47). Surprisingly, both groups expressed greater self-confidence in their ability to complete a Bachelor's degree than in their ability to succeed in their own present program. We can only speculate about the reasons for this finding. The explanation may lie in the different forms used to phrase the two questions in the JCSI (items 59 and 81), or in the possibility that some students interpreted "own program" to include their long-range transfer obeectives, or in the commonly expressed attitudes among junior college students to the effect, "If I could only get into the program of my choice, I am sure I could do it."

The "Judged Achievement" measure was based on seven Junior College Student Inventory items, each of which asked the student to specify on a 5-point scale the degree of progress he felt he was making toward attaining a number of educational objectives; e.g., "developing an ability to think critically." Each student's score was computed by averaging the values for his responses over the seven items composing this variable. A neutral or midrange composite score would be 3.0 (Moderate Amount). The group means for both men and women students, $\bar{X}=3.43$ and $\bar{X}=3.35$, respectively, placed both sexes at a point between "moderate amount" and "quite a bit." Thus, these students, who had been relatively new to college at the time the JCSI was administered, were presenting a guardedly optimistic and positive picture of the effectiveness of their educational experience. It was probably the case that the responses of many of the students reflected their hopes about the longer-range educational outcomes of their college training than their assessment of actual achievement to date.

Scores on the "Satisfaction with College" variables were computed by averaging responses on three JCSI items, each having a 5-point range. The midrange value on this measure was 3.0. As indicated in Tables 35 and 36, the group means for both men and women students, $\bar{X}=3.33$ and $\bar{X}=3.54$, respectively, exceeded the midrange figure but not by wide margins. In general, students reported a moderately positive liking for their colleges.

The Academic Change-Press variable, based on seven JCSI items, provided a measure of pressure on the student to modify his educational aspiration level upward or downward. Students reporting suggestions from parents, friends, faculty, and/or counselors that they go to a

4-year college (rather than a junior college) received high change-press scores. Students reporting suggestions from others that they drop out of school received low change-press scores. The midrange value, based on an average of the seven items, was 2.0, which is interpreted as having "sometimes" received such suggestions (either to raise or lower one's educational aspiration level). The findings here are consistent with those presented in other studies in which students failed to report heavy pressure from others relative to the college decision, this despite the commonly held view that parental and other personal and social influences upon adacemic goal-setting, however subtle, are widespread and profound.

Since social pressures in the choice of educational and vocational objectives can be indirectly observed through the prestige rankings which society confers upon curricula and occupations, the project data on the six Prestige Differentials provide another approach to the question. Because of the very intricate process by which the Prestige Differentials scores were derived (See Chapter 4 for a detailed explanation of the scoring method), it is difficult to provide a simple interpretation of the Prestige Differentials values reported in Tables 35 and 36. It will be recalled (Chapter 4), however, that any positive differential value signifies that the particular curricular program that the student is responding to in the JCSI is one that he believes to possess greater prestige than the program in which he himself is enrolled. Conversely, any prestige differential which yields a negative value signifies that the student believes the curricular program under review to command less prestige than his own. The fact that all six Prestige Differentials for both men and women students in Tables 35 and 36 bear negative values indicates that students of both sexes, on the average, judged their own curricular programs to be higher in prestige than any of the five other programs they were asked to evaluate. Indirectly, at least, this general finding supports the conclusions of numerous other studies to the effect that students are influenced by their perceptions of social desirability and status in deciding among academic majors and careers.

Raw scores on the Work Values Inventory (WVI) were transmuted to percentile rank scores. Since testing with this instrument, as with the JCSI, was carried out shortly after all subjects entered their respective colleges, twelfth-grade students seemed the most appropriate reference group to use among the several normed grade samples reported in the Manual for the WVI. (Super, 1970) The Manual furnishes separate norm tables for twelfth-grade boys and girls. Listed below for both the male and female junior college groups are the percentile rank scores corresponding to the 15 WVI means as presented in Tables 35 and 36.

WVI Scales	Percentile Ranks	
	Males	Females
Creativity	52	53
Management	51	56
Achievement	49	49
Surroundings	50	50
Supervisory Relations	45	47
Way of Life	41	43
Security	39	38
Associates	51	51
Esthetics	54	50
Prestige	52	49
Independence	52	55
Variety	54	54
Economic Returns	39	44
Altruism	50	48
Intellectual Stimulation	46	49

These results are remarkable both for the similarilty between male and female score patterns and the flatness of the profiles. The only substantial raw score difference between men and women students showed women placing a higher value on Altruism as a condition of satisfying work. For the men students, only two of the 15 WVI scales produced scores which deviated as much as 11 percentile rank points from their respective medians. While divergences from the norm were even smaller for the women students, the same two scales, Security and Economic Returns, were among the few showing even small deviations from the medians. Both sexes were slightly depressed on both scales, an indication perhaps that O'Connor-Kinnane Factor A (Security-Economic-Material), as reported in the WVI Manual, occupied a lower priority in the work values of thepublic junior-community college freshmen than among a representative sample of high school seniors. The Way of Life scale also yielded average percentile rank scores for both men and women students which were slightly depressed with respect to twelfth-grade norms. The explanation may lie partly in this scale's lack of range. The mean scores of 13.35 and 13.65 (maximum score = 15) for twelfth-grade boys and girls, respectively, were the highest of all the scales. Forty-five percent of the high school senior boys and 51 percent of the girls registered the maximum score of 15 on the Way of Life scale.

As reported in the literature review (Chapter 2), junior college students tend to project a cross-section of the community at large in socioeconomic status. Support for this conclusion comes from the project findings. The socioeconomic status means for men and women students are seen to be similar. In general, they signify that the typical parent of the subjects in this public junior college sample had earned the high school diploma, had attained less than two years of college, and was employed at about the occupational level of salesman, clerical worker, or construction foreman.

Table 35

Means and Standard Deviations of Male Students

(N=5924)

Variable Code No.	Variable Name	$\bar{X}$	S.D.
1	SES: Family educational and occupational level	4.66	1.68
	Student Preference Scales		
2	S 1: Intellectual Environment	54.04	7.66
3	S 2: Sociability	99.83	11.28
4	Likelihood/Success in 2-yr program	2.70	.62
5	Likelihood of Success in B.A. program	3.60	.97
6	Judged Achievement	3.43	.62
7	GATB N: Arithmetic Reasoning	13.28	2.79
	Work Values Inventory		
8	Creativity	11.58	2.32
9	Management	10.17	2.29
10	Achievement	12.72	1.92
11	Surroundings	12.11	2.05
12	Supervisory Relations	12.48	2.20
13	Way of Life	13.35	1.79
14	Security	12.65	2.27
15	Associates	10.96	2.06
16	Esthetics	8.73	2.71
17	Prestige	11.68	2.19
18	Independence	12.11	1.98
19	Variety	11.35	2.27
20	Economic Returns	12.79	2.02
21	Altruism	11.61	2.32
22	Intellectual Stimulation	11.78	1.98
23	Academic Change-Press	1.92	.25
24	Satisfaction with College	3.33	.69
	Junior College Environment Scales		
25	E 1: Conventional Conformity	53.75	11.36
26	E 2: Internalization	21.69	4.97
27	E 3: Maturation	44.47	4.70
28	E 4: Humanism	13.41	4.82
	Faculty Preference Scales		
29	F 1: Preferred type of student body	80.12	1.77
30	F 2: Small, friendly, and intellectual campus	54.19	3.37

Table 35 (continued)

Variable Code No.	Variable Name	$\bar{X}$	S.D.
	Community Characteristics Index		
31	C 1: Socioeconomic Class	71.49	24.25
32	C 2: Higher Education	6.82	1.66
33	C 3: Mobility (job and status)	-7.57	4.07
34	C 4: Marital Status	49.73	7.12
35	C 5: Economic, Racial Discrimination	-5.30	14.75
36	C 6: Industrial Unionization	436.53	231.12
37	C 7: Housing Imbalance	-15.76	13.77
38	C 8: Young Families	-42.15	19.35
39	C 9: Suburban Areas	5061.82	3165.71
40	C10: Large Farms	-212.92	389.09
41	C11: Consumption (purchasing power)	1999.85	322.37
42	C12: Income	26.90	25.02
43	C13: Urbanization	27.70	290.96
	Prestige Differentials		
44	PD1: Program college friends in	-.81	3.31
45	PD2: Friend's suggestion to change	-.72	3.36
46	PD3: Faculty or counselor's suggestion	-.52	3.06
47	PD4: Parents' Suggestion	-.67	3.33
48	PD5: Intended Program	-.83	3.51
49	PD6: Attractive Program to get in	-1.60	4.99

Table 36

Means and Standard Deviations of Female Students

(N=3686)

Variable Code No.	Variable Name	$\bar{X}$	S.D.
1	SES: Family educational and occupational level	4.77	1.71
	Student Preference Scales		
2	S 1: Intellectual Environment	57.87	7.46
3	S 2: Sociability	98.20	11.08
4	Likelihood/Success in 2-yr program	2.47	.57
5	Likelihood of Success in B.A. program	3.52	1.01
6	Judged Achievement	3.35	.59
7	GATB N: Arithmetic Reasoning	12.63	2.82
	Work Values Inventory		
8	Creativity	11.20	2.35
9	Management	9.44	2.22
10	Achievement	13.31	1.71
11	Surroundings	12.41	2.07
12	Supervisory Relations	12.73	2.06
13	Way of Life	13.65	1.62
14	Security	12.34	2.33
15	Associates	11.08	2.01
16	Esthetics	8.67	2.73
17	Prestige	11.31	2.23
18	Independence	11.37	2.03
19	Variety	11.24	2.26
20	Economic Returns	12.21	2.16
21	Altruism	13.24	1.96
22	Intellectual Stimulation	11.67	1.99
23	Academic Change-Press	1.94	.25
24	Satisfaction with College	3.54	.72
	Junior College Environment Scales		
25	E 1: Conventional Conformity	53.83	10.70
26	E 2: Internalization	22.51	4.57
27	E 3: Maturation	45.21	4.78
28	E 4: Humanism	13.52	4.48
	Faculty Preference Scales		
29	F 1: Preferred type of student body	80.28	1.90
30	F 2: Small, friendly, and intellectual campus	53.62	3.24

Table 36 (continued)

Variable Code No.	Variable Name	$\overline{X}$	S.D.
	Community Characteristics Index		
31	C 1: Socioeconomic Class	72.23	24.77
32	C 2: Higher Education	6.89	1.49
33	C 3: Mobility (job and status)	-7.21	4.21
34	C 4: Marital Status	50.62	8.35
35	C 5: Economic, Racial Discrimination	-1.63	15.93
36	C 6: Industrial Unionization	443.69	243.10
37	C 7: Housing Imbalance	-16.56	14.16
38	C 8: Young Families	-44.64	19.16
39	C 9: Suburban Areas	5279.99	3290.95
40	C10: Large Farms	-235.58	390.95
41	C11: Consumption (purchasing power)	2028.47	320.63
42	C12: Income	27.72	25.08
43	C13: Urbanization	47.52	307.42
	Prestige Differentials		
44	PD1: Program college friends in	-.64	2.88
45	PD2: Friend's suggestion to change	-1.17	3.42
46	PD3: Faculty or counselor's suggestion	-.89	2.86
47	PD4: Parents' Suggestion	-1.28	3.59
48	PD5: Intended Program	-.85	3.42
49	PD6: Attractive Program to get in	-1.48	4.87

Table 37 presents selected data on socioeconomic characteristics, anticipated income, and academic self-confidence for students in three curriculum groups -- transfer programs, occupational programs, and no program (undecided). The figures on parents' educational and occupational levels are consistent with those reported for the composite socioeconomic status index in Tables 35 and 36. Although they were distributed over a broad range of educational levels and jobs, the parents of all three groups typically had completed under two years of college work and were employed in the white collar subprofessional categories. Predictably, the transfer-bound students came from families with a somewhat higher average socioeconomic level than that of occupational programs students. However, students enrolled in occupational curricula anticipated higher peak year earnings (JCSI item 93) than did transfer students. As might be expected, the transfer students expressed greater confidence in their chances for success in a B.A. degree program than did either the occupational program students or the undecided students. As in the case of Tables 35 and 36, confidence levels pertaining to group differences on the several variables reported in Table 37 were not computed since the purpose here was chiefly to present descriptive statistics rather than to analyze variances.

Table 37

Means and Standard Deviations of Total Sample and Students in Three Curricular Programs

Groups / Var. Names	Total Group (N=9610)		Transfer (N=2845)		Occupational (N=5395)		Undecided (N=1370)	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Education Level of Parents or Guardian	4.40	1.94	4.56	2.01	4.30	1.87	4.46	2.01
Expected Income	-	-	5.80	2.29	6.08	2.32	6.06	2.37
Occupation Level of Parents	-	-	5.25	1.94	5.02	1.99	5.21	1.94
Likelihood of Success in B.A. Program	3.58	.96	3.75	.90	3.51	.97	3.51	1.02
Parental Pressure for change to 4-yr. college	1.50	.71	-	-	-	-	-	-

NOTE: Values were not computed for cells in table which have been left vacant.

Table 38 is a 49x49 intercorrelation matrix encompassing the entire set of predictor variables for the 5924 male students for whom complete sets of data were available. Identification of the variables by number can be made by referring back to Tables 35 and 36 in which numbers and titles are paired. To further simplify the clerical task of preparing Table 38 all decimals have been omitted. An asterisk marks all correlations which satisfy the test of significance (confidence level of .0005, one-tailed test). Correlations of the magnitude of .10 and higher met this test. A computer-generated intercorrelation matrix for women students, which is not reproduced in this report, yielded a configuration strikingly similar to that for men.

Interpretation of Table 38 is here confined to certain selected relationships which bear most closely upon the major objectives of the study and which may help clarify the multivariate analysis findings reported in later sections of this chapter. Casual inspection of the table reveals that, while a sizable number of correlations met the test of significance, the great majority approached zero or were very negligible. The exceptions are to be found in the intercorrelations between scales within homogeneous set of variables (e.g., Work Values Inventory scales, Junior College Environment Scales, Community Characteristics Indices). In virtually all cases, even those correlations between variables from different instruments that are statistically significant (e.g., S1: Intellectual Environment and Work Values Inventory: Creativity — r_{28}=.20) show only very modest degrees of relationship. It should be remembered that, to the extent that any predictor variable possesses demonstrable validity with reference to criterion or outcome variables, such as 2-year educational career patterns, the potential contribution of that measure

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to variance in multiple discriminant analysis is increased by its low correlations with other predictor variables. For example, the six Prestige Differentials (PD1 - PD6), which are numbered variables 44 - 49, are seen in Table 38 to yield a set of correlations with other predictor variables (1 to 43) which are consistently close to zero. Yet, in the series of tables which report findings for the multiple discriminant analyses (See beginning with Table 39A), certain of the Prestige Differentials predictors are shown to make a modest but significant contribution to the differentiation of 2-year educational career patterns.

Table 38

Intercorrelation Matrix on 49 Variables for Male Students (N = 5924)[a]

Var. No.	1	2	3	4	5	6	7	8	9	10
1	-	01	03	08	10*	05	-01	06	05	01
2		-	29*	13*	18*	20*	13*	20*	08	25*
3			-	-01	-00	08	-04	-08	18*	02
4				-	29*	27*	14*	17*	08	07
5					-	27*	19*	13*	10*	07
6						-	07	27*	16*	12*
7							-	-03	-04	02
8								-	39*	50*
9									-	31*
10										-

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	11	12	13	14	15	16	17	18	19	20
1	-01	-03	02	-02	00	02	02	04	01	-00
2	15*	17*	21*	09	13*	02	11*	13*	13*	07
3	08	06	01	09	18*	15*	13*	08	08	10*
4	04	02	09	-00	03	10*	05	09	10*	02
5	04	01	11*	09	00	-01	07	11*	07	03
6	09	06	13*	05	07	11*	14*	16*	10*	06
7	-00	03	09	00	00	-14	00	00	03	03
8	29*	22*	31*	18*	23*	41*	37*	42*	37*	19*
9	32*	23*	19*	25*	33*	32*	51*	39*	26*	28*
10	43*	43*	50*	37*	34*	20*	43*	41*	32*	34*

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	21	22	23	24	25	26	27	28	29	30
1	02	05	12*	01	00	01	03	02	02	-01
2	23*	25*	13*	20*	00	-03	03	-01	-01	-00
3	09	04	01	02	03	02	-02	-04	-02	-00
4	01	15*	14*	12*	-06	-06	00	05	00	02
5	02	18*	20*	18*	-06	-01	00	04	-02	-01
6	13*	28*	14*	23*	-01	-00	-00	01	-00	-00
7	-06	06	07	03	-00	-06	-00	00	01	04
8	32*	52*	09	10*	-08	-04	02	08	01	-01
9	31*	34*	07	05	-05	-01	-00	02	00	-03
10	42*	45*	07	11*	00	-01	01	00	01	-02

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	31	32	33	34	35	36	37	38	39	40
1	-03	-02	02	01	01	00	00	-01	01	-01
2	-01	09	03	-01	01	-00	-00	-00	-08	01
3	-02	-00	-01	-04	-00	-00	01	01	01	-00
4	02	-01	-04	03	-00	05	03	03	04	-06
5	02	-01	-04	-01	-00	04	06	06	03	-06
6	-01	-02	-01	-02	-01	00	02	03	00	-01
7	03	05	01	03	-01	02	-05	-04	03	-03
8	02	-01	-03	-00	-01	04	06	06	-01	-04
9	03	-03	-05	-04	-00	06	06	06	03	-04
10	-02	03	00	-04	-01	-00	00	01	-08	03

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	41	42	43	44	45	46	47	48	49
1	00	-01	01	-00	-04	-06	-05	-03	-01
2	-05	-04	-07	-02	-04	-05	-04	00	00
3	-00	-01	01	01	00	-00	03	-02	-01
4	02	04	04	-04	-04	-02	-03	-01	02
5	01	03	01	-03	-06	-06	-06	-00	02
6	-01	-00	-00	-02	-02	-01	-02	-01	02
7	04	02	05	02	00	-01	00	02	02
8	-01	02	-03	-02	-01	-00	00	-01	02
9	02	04	01	-01	-02	-02	-01	-01	00
10	-06	-03	-08	-01	-02	00	-01	00	-00

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	11	12	13	14	15	16	17	18	19	20
11	-	50*	46*	47*	42*	22*	41*	32*	28*	48*
12		-	44*	53*	43*	14*	36*	25*	29*	51*
13			-	40*	35*	07	37*	42*	31*	42*
14				-	40*	14*	39*	23*	21*	57*
15					-	25*	46*	22*	28*	37*
16						-	28*	24*	23*	10*
17							-	42*	33*	43*
18								-	37*	32*
19									-	31*
20										-

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	21	22	23	24	25	26	27	28	29	30
11	29*	25*	05	06	01	-04	00	-00	01	-02
12	24*	20*	01	04	01	-02	01	00	-02	00
13	28*	31*	09	06	05	01	01	-01	02	-02
14	21*	16*	03	03	05	00	-01	-03	-00	-02
15	32*	17*	01	06	03	00	-00	-02	00	-02
16	24*	20*	00	05	-02	-02	00	02	01	01
17	33*	30*	06	04	-01	00	00	00	01	-03
18	23*	35*	07	02	01	01	03	-00	02	-04
19	19*	30*	01	00	-08	-03	00	05	-00	-00
20	12*	18*	02	-00	03	-01	-00	-01	-00	-01

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	31	32	33	34	35	36	37	38	39	40
11	-02	-06	03	-01	01	00	-00	-00	-05	02
12	-04	03	02	-00	-00	-02	00	00	-06	03
13	-05	02	03	-03	-02	-05	-03	-02	-08	04
14	-05	03	03	-04	-01	-03	-00	-00	-08	05
15	-03	05	02	-03	01	00	-01	-01	-04	02
16	-00	-02	-03	-00	00	08	04	02	03	-01
17	-00	-00	-01	-04	-00	02	02	02	-01	00
18	-04	-00	01	-03	01	-01	01	00	-04	03
19	03	-02	-05	-00	00	04	04	05	02	-03
20	-04	03	04	-02	-01	-02	-00	-00	-05	02

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	41	42	43	44	45	46	47	48	49
11	-04	-03	-04	00	00	01	02	-00	-00
12	-07	-05	-05	02	02	03	03	02	-02
13	-07	-07	-08	00	-01	-00	-02	-00	-01
14	-07	-07	-07	01	00	03	02	-00	-01
15	-03	-04	-03	00	01	02	03	01	-03
16	-00	00	03	-02	-02	-01	-00	-03	-00
17	-01	-00	-02	-00	-02	-01	-00	-01	-02
18	-05	-04	-04	-03	-03	-03	-01	-01	-00
19	01	04	01	-01	-00	00	00	00	-02
20	-05	-05	-05	03	02	05	02	00	-02

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	21	22	23	24	25	26	27	28	29	30
21	-	34 *	07	12*	01	00	02	01	03	-03
22		-	10*	14*	-01	00	03	06	03	-04
23			-	10*	-01	-06	-05	-02	01	00
24				-	04	01	03	-03	-02	-00
25					-	50*	25*	-48	-01	-07
26						-	31*	-21	-09	-32
27							-	38*	24*	-18
28								-	18*	-01
29									-	-45
30										-

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	31	32	33	34	35	36	37	38	39	40
21	-00	-00	-01	-04	-02	-00	00	01	-05	01
22	-00	-02	-00	-00	00	-00	02	01	-04	01
23	-00	02	-02	-06	-06	04	03	05	-02	-02
24	-08	01	03	-01	-00	-04	-00	-00	-07	02
25	-66	06	48*	00	16*	-69	-49	-62	-26	52*
26	-41	-22	18*	01	32*	-45	-21	-31	-16	21*
27	-46	-22	26*	32*	33*	-32	-27	-45	-24	28*
28	27*	-46	-27	28*	-03	20*	27*	17*	24*	-42
29	00	-21	04	10*	19*	09	-19	-27	03	-04
30	00	-07	-23	12*	-50	-09	-01	11*	05	11*

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	41	42	43	44	45	46	47	48	49
21	-04	-02	-05	-02	-04	-05	-04	-01	-00
22	-03	-01	-05	-02	-03	-03	-02	00	03
23	-02	-01	-02	00	-01	-01	-00	-00	01
24	-09	-09	-06	01	01	00	00	01	02
25	-34	-70	-12	-04	-02	-02	-02	-03	-01
26	-18	-34	-21	-03	-05	-07	-06	-00	02
27	-37	-41	-16	-03	-01	00	-00	00	00
28	17*	37*	20*	03	-02	-03	-02	02	03
29	06	-01	09	-01	-01	-00	00	01	03
30	-07	00	17*	00	04	04	03	-00	-00

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	31	32	33	34	35	36	37	38	39	40
31	-	12*	-46	03	-16	62*	16*	34*	48*	-54
32		-	51*	02	07	08	-31	-25	-31	24*
33			-	35*	34*	-52	-55	-73	-46	51*
34				-	29*	-28	-45	-54	03	05
35					-	-19	-03	-28	-01	21*
36						-	48*	59*	47*	-63
37							-	89*	36*	-43
38								-	28*	-50
39									-	-65
40										-

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	41	42	43	44	45	46	47	48	49
31	77*	94*	35*	04	00	-00	-00	03	00
32	-01	-02	-29	01	00	00	00	-02	-07
33	-31	-55	-39	-00	01	02	00	-01	-02
34	06	04	12*	-00	-00	-01	00	00	-00
35	-02	-17	-02	-05	-05	-04	-03	-01	-02
36	52*	68*	33*	05	01	01	01	02	-01
37	11*	27*	22*	-01	-00	-01	-00	01	00
38	14*	42*	13*	01	01	01	01	02	01
39	81*	66*	94*	01	-01	-03	-02	02	01
40	-63	-68	-56	-04	00	01	02	-03	-01

a. Decimals omitted *C.V. of r. at .0005 (one-tailed) = .10

TABLE 38 (continued)

Var. No.	41	42	43	44	45	46	47	48	49
41	-	83*	69*	04	00	-00	-01	03	01
42		-	51*	05	00	-01	-01	03	02
43			-	-00	-02	-03	-02	00	00
44				-	36*	33*	28*	21*	16*
45					-	57*	51*	32*	23*
46						-	56*	33*	22*
47							-	30*	23*
48									24*
49									-

a. Decimals omitted C.V. of r. at .0005 (one-tailed) = .10

Tables 39A-39B to 48A-48B present the results of the series of multiple discriminant analysis treatments involving the array of 49 predictor variables, including the measures previously employed as intermediate criteria (See Chapter 5), and various combinations of educational outcomes. Each of the ten multivariate analyses tested the power of the predictor team to correctly classify students into a preselected set of educational career patterns. The order of presentation of the tabled findings for the ten groupings of 2-year career patterns is as follows:

Tables 39A&B: 5 groups initially enrolled in occupational programs

Tables 40A&B: 5 groups initially enrolled in transfer programs

Tables 41A&B: 5 groups initially undecided about curricular programs

Tables 42A&B: 6 groups initially enrolled in occupational or transfer programs

Tables 43A&B: 6 groups enrolled in occupational programs during last term in college

Tables 44A&B: 6 groups enrolled in transfer programs during last term in college

Tables 45A&B: 6 groups whose educational career patterns differ in educational-occupational aspiration level

Tables 46A&B: 7 groups exhibiting different linkages between initial college program status and post-college employment status

Tables 47A&B: 7 groups exhibiting different linkages between final college program status and post-college employment status

Tables 48A&B: 2 groups differing in success with college program (degree completion versus noncompletion)

In the tabular results summary for each of the ten multiple discriminant analyses, the A table identifies the predictor variables which made significant contributions to the categorical differentiation of educational career pattern groups; lists the discriminant functions, by predictor, for each group within the set, and reports the F-value and degrees of freedom for the matrix. The B table again enumerates the significant variables, but in the descending order of the individual F-values. Of the full array of 49 predictor variables used in the multiple discriminant analysis, those not listed in the A and B tables were found to have F-values too small to contribute any further significant increase in the precision with which the 2-year educational career patterns could be differentiated.

It will be noted that each B table contains a "Variable Removed" column. This information is included because, by the biomedical stepwise method of multiple discriminant analysis used in this treatment, a variable which had been entered earlier may lose its power to account in a significant way for overall variance when other variables are subsequently entered. In only one instance, Table 41B, was a variable (Student Preference Scale 1) removed that had been entered on an earlier step.

Identification of the predictor variables listed by number in all A and B tables can be made by referring back to Tables 35 and 36 where numbers and names of variables are paired.

Tables 39A and 39B present the results of the multiple discriminant analysis of five educational career pattern categories, each consisting of students initially enrolled in occupational programs but holding a different curriculum status two years later. The key for the career pattern codes at the end of Table 39A explains the divergent final curriculum statuses (hence, the disparate educational career patterns) of the five groups of students. A combination of 20 predictor variables contributed significantly to the differentiation between the educational career pattern categories. These included socioeconomic status, Student Preference Scales 1 and 2, two measures of academic self-confidence (Likelihood of Success in B.A. programs, Judged Achievement), Arithmetic Reasoning (GATB), three Work Values Inventory scales (Creativity, Security, Independence), Satisfaction with College, three Junior College Environment Scales (E2, E3, E4), one Faculty Preference Scale (F1), five Community Characteristics (Higher Education, Job and Status Mobility, Economic-Racial Discrimination, Large Farms, Urbanization), and one Prestige Differential (Parents' Suggestion). Thus, it is seen that a broadly assorted combination of conditions and characteristics is associated with the varying 2-year curriculum patterns of public junior college students who initially enrolled in occupational programs. Approximately one-half are psychosocial and personal trait variables, including self-perceptions and stated preferences.

This type of multiple discriminant analysis does not directly indicate which predictors are more likely to be associated with particular educational career patterns or in which direction. Rather, it isolates that cluster of variables which makes possible the sharpest separation of criterion categories, in this case 2-year educational career patterns. Later in this chapter, tabled results are presented for a number of comparisons between selected pairs of educational career patterns (Tables 49 to 81). In each of these comparisons, carried out through a post hoc means contrast treatment, the direction of the relationship between predictor and criterion group scores is denoted. For example, the findings reveal whether high scores on the Achievement scale of the Work Values Inventory are more characteristic of students who initially enrolled in and later successfully completed occupational programs or of students who initially enrolled in but failed to complete occupational programs after two years.

TABLE 39A

Multiple Discriminant Analysis of Five 2-Year Career (Curriculum) Patterns*

(Students initially enrolled in Occupational programs)

	Discriminant Functions				
Variable No.	O-GT (N=402)	O-GO (N=748)	O-NGT (N=1455)	O-NCO (N=2047)	O-NGU (N=559)
1	2.85	2.73	2.90	2.84	2.87
2	.12	.11	.09	.09	.10
3	.76	.76	.78	.78	.78
5	2.02	1.77	1.72	1.63	1.48
6	2.38	2.83	2.57	2.61	2.65
7	1.22	1.17	1.15	1.13	1.08
10	.64	.81	.68	.69	.69
14	1.07	1.10	1.07	1.13	1.06
18	1.20	1.04	1.21	1.13	1.18
24	6.63	6.73	6.34	6.48	6.29
26	6.39	6.32	6.41	6.42	6.49
27	.29	.15	.15	.07	-.03
28	2.87	2.80	3.05	3.00	3.13
29	33.89	33.61	33.83	33.88	33.90
32	26.58	26.61	26.57	26.50	26.39
33	-6.29	-6.12	-6.28	-6.15	-6.22
35	-1.08	-1.10	-1.08	-1.10	-1.10
40	.02	.02	.02	.02	.02
43	.02	.02	.02	.02	.02
47	-.13	-.02	-.11	-.05	-.05
Contrast	-1668.23	-1636.57	-1657.66	-1656.64	-1655.71

* Students in each 2-year career (curriculum) pattern were initially enrolled in Occupational programs.

Approximate F for matrix = 25.54
df for F matrix = 20/5187

Key for Career Pattern Codes (Table 39A continued)

O-GT : Initial program, Occupational; graduated in Transfer program
O-GO : Initial program, Occupational; graduated in Occupational program
O-NGT: Initial program, Occupational; last program, Transfer; nongraduate
O-NGO: Initial program, Occupational; last program, Occupational; nongraduate
O-NGU: Initial program, Occupational; last program, Undecided; nongraduate

TABLE 39B

Summary of Results from Stepwise Discriminant Analysis of Five 2-Year Career (Curriculum) Patterns (Students initially enrolled in Occupational programs)

Step No.	Variable No.		F-Value	U-Statistic
	Entered	Removed		
1	28	-	150.77	.89
2	27	-	71.52	.84
3	32	-	59.21	.81
4	5	-	30.85	.79
5	33	-	26.80	.77
6	35	-	21.47	.76
7	26	-	17.81	.75
8	29	-	20.45	.74
9	47	-	16.27	.73
10	24	-	16.13	.72
11	40	-	13.92	.71
12	7	-	10.22	.71
13	1	-	8.43	.70
14	18	-	6.70	.70
15	10	-	9.99	.69
16	6	-	4.24	.69
17	14	-	3.97	.69
18	3	-	3.88	.69
19	2	-	4.57	.68
20	43	-	3.84	.68

Because the layout of findings in Tables 40A & B through 48A & B is consistent with that used in the construction of Tables 39A & B, the same general approach to the interpretation of results is applicable here. In the discussion that follows, brief statements will be made concerning the significant features of the relationships between predictor teams and 2-year educational career pattern outcomes, as disclosed by the nine remaining multivariate treatments. Tables 40A & B identify the combination of 13 variables which afforded the best categorical separation of five curriculum patterns, each pattern consisting of subjects who had initially enrolled in transfer programs. Once again, both environmental and personal trait variables made substantial contributions to the differentiation of groups within the educational career pattern set. Ten of the variables with significant F-values are environmental, six of these from the Community Characteristics Index. We may interpret this finding to mean that the measurable characteristics of the community in which the public junior college is located have a significant influence, when combined with other conditions, upon the 2-year educational career patterns of students who are initially enrolled in transfer programs. Inspection of the data shows, additionally, that the single scholastic aptitude factor used (GATB, N: Arithmetic Reasoning), academic self-confidence (Likelihood of Success in B.A. program), and student's feeling of harmony with the college environment (Satisfaction with College) also contributed to the correct group placement of students within the five curriculum patterns of this particular set.

Tables 41A & B summarize the relationships between predictor variables and educational career patterns of five student groups, each of which included only students who had been undecided about curriculum

TABLE 40A

Multiple Discriminant Analysis of Five 2-Year Career (Curriculum) Patterns*

(Students initially enrolled in Transfer programs)

	Discriminant Functions				
Variable No.	T-GT (N=621)	T-GO (N=64)	T-NGT (N=1382)	T-NGO (N=370)	T-NGU (N=291)
5	6.13	6.01	5.89	5.81	5.88
7	1.07	1.08	1.01	1.00	.97
24	8.44	8.39	8.02	7.86	7.69
27	17.54	17.28	17.52	17.33	17.38
28	-6.85	-6.66	-6.79	-6.69	-6.69
29	79.50	79.15	79.66	79.40	79.53
30	35.92	35.72	36.03	35.86	35.91
32	16.78	17.43	17.06	16.81	16.69
34	-1.98	-2.03	-1.94	-1.91	-1.93
36	-.25	-.26	-.26	-.25	-.25
37	8.61	8.58	8.67	8.60	8.65
41	.35	.35	.35	.35	.35
43	-.30	-.30	-.30	-.30	-.30
Constant	-4774.49	-4720.72	-4794.10	-4748.79	-4767.55

*Students in each 2-year career (curriculum) pattern were initially enrolled in Transfer programs.

Approximate F for matrix = 14.27
df for F matrix = 13/2711

Key for Career Pattern Codes

-T-GT : Initial program, Transfer; graduated in Transfer program
T-GO : Initial program, Transfer; graduated in Occupational program
T-NGT: Initial program, Transfer; last program, Transfer, nongraduate
T-NGO: Initial program, Transfer; last program, Occupational; nongraduate
T-NGU: Initial program, Transfer; last program, Undecided; nongraduate

TABLE 40B

Summary of Results from Stepwise Discriminant Analysis of Five 2-Year Career (Curriculum) Patterns

(Students initially enrolled in Transfer programs)

Step No.	Variable No. Entered	Variable No. Removed	F-Value	U-Statistic
1	28	-	35.22	.95
2	27	-	26.21	.91
3	24	-	19.58	.88
4	41	-	19.64	.86
5	37	-	10.62	.85
6	34	-	10.69	.83
7	43	-	9.61	.82
8	30	-	9.17	.81
9	5	-	8.40	.80
10	29	-	7.29	.79
11	36	-	8.80	.78
12	32	-	12.72	.77
13	7	-	4.26	.76

TABLE 41A

Multiple Discriminant Analysis of Five 2-Year Career (Curriculum) Patterns*
(Students initially Undecided about curricular programs)

Variable No.	Discriminant Functions U-GT (N=158)	 U-GO (N=127)	 U-NGT (N=479)	 U-NGO (N=407)	 U-NGU (N=160)
5	1.28	.89	.96	.76	.90
6	5.25	5.88	5.21	5.52	5.63
7	1.81	1.82	1.73	1.74	1.68
16	1.44	1.42	1.55	1.49	1.46
21	2.00	2.03	1.91	1.85	1.80
25	1.82	1.99	1.85	1.88	1.88
26	1.02	.92	1.03	1.04	1.04
27	5.70	5.56	5.59	5.44	5.46
28	-.20	-.11	-.00	.05	.07
31	1.02	1.05	1.02	1.01	1.04
32	8.26	8.54	8.34	8.48	8.01
33	-1.38	-.95	-1.36	-1.20	-1.22
38	.66	.77	.66	.69	.69
48	-.66	-.76	-.68	-.71	-.64
Constant	-286.36	-285.98	-283.25	-275.97	-276.52

*Students in each 2-year career (curriculum) pattern were initially enrolled in Undecided programs.

Approximate F for matrix = 11.72
df for F matrix = 14/1313

Key for Career Pattern Codes

U-GT : Initial program, Undecided; graduated in Transfer program
U-GO : Initial program, Undecided; graduated in Occupational program
U-NGT: Initial program, Undecided; last program, Transfer; nongraduate
U-NGO: Initial program, Undecided; last program, Occupational; nongraduate
U-NGU: Initial program, Undecided; last program, Undecided; nongraduate

TABLE 41B

Summary of Results from Stepwise Discriminant Analysis of Five 2-Year Career (Curriculum) Patterns
(Students initially Undecided about curricular programs)

Step No.	Variable No. Entered	Variable No. Removed	F-Value	U-Statistic
1	32	-	50.94	.86
2	27	-	17.10	.82
3	28	-	20.11	.77
4	31	-	14.16	.74
5	2	-	8.99	.72
6	5	-	5.44	.71
7	16	-	4.91	.70
8	6	-	5.10	.69
9	21	-	4.81	.68
10	25	-	4.57	.67
11	48	-	4.37	.66
12	38	-	4.00	.65
13	33	-	11.14	.63
14	26	-	4.86	.62
15	-	2	3.23	.63
16	7	-	3.54	.62

when they initially entered college. Fourteen variables in combination composed the predictor team, a fifteenth variable (Student Preference Scale 2) having been entered but later removed from the team by the stepwise method of multiple discriminant analysis. The five predictors with the highest individual F-values were all environmental variables (two Junior College Environment Scales and three Community Characteristics Indices). One is cautioned, however, not to inflate the importance of this finding, since the individual F-values are partially a function of the intricate interactions between members of the lengthy and arbitrarilly selected predictor set as well as with the criterion set itself.

In Tables 42A & B, six of the 2-year educational career patterns examined in the previous two multiple discriminant analyses were recombined for study in relation to the predictor set. Three of the patterns consisted of student groups initially enrolled in occupational programs; the remaining three consisted of student groups initially enrolled in transfer programs but exhibiting end-of-second-year program statuses matching those of the first three student groups. Analysis of this particular set of curriculum patterns permitted a clearer understanding of factors which were differentially related to the 2-year career patterns of students beginning in occupational programs versus those beginning in transfer programs. As the tables show, 19 variables were included in the predictor combination which best separated the six educational career patterns in this set. The overall approximate F-value of 40.83 is among the largest obtained over the series of ten multivariate analysis treatments.

Tables 43A & B deal with the analysis of data on a set of six

TABLE 42A

Multiple Discriminant Analysis of Six 2-Year Career (Curriculum) Patterns*
(Groups initially enrolled in Occupational or Transfer programs)

	Discriminant Functions					
Variable	O-GO (N=748)	O-GT (N=402)	O-NG (N=4061)	T-GO (N=64)	T-GT (N=621)	T-NG (N=2043)
1	1.65	1.73	1.75	1.61	1.77	1.80
2	.14	.15	.12	.17	.18	.16
3	.83	.83	.84	.81	.81	.82
5	2.79	3.07	2.68	3.07	3.12	2.88
6	3.22	2.74	2.97	2.38	2.46	2.56
7	1.51	1.55	1.46	1.52	1.53	1.46
16	.21	.27	.26	.18	.21	.22
18	1.42	1.53	1.52	1.58	1.57	1.61
20	1.13	1.04	1.06	1.02	.90	.91
21	.96	.89	.90	.95	1.05	.99
24	4.72	4.63	4.38	4.82	4.76	4.34
27	.29	.50	.32	.33	.42	.33
28	.44	.42	.57	.53	.41	.56
29	25.75	25.99	25.99	26.01	26.08	26.04
32	7.29	6.80	6.92	7.02	6.73	6.80
36	-.02	-.01	-.02	-.02	-.01	-.02
44	-.10	-.11	-.10	-.10	-.16	-.18
46	.21	.09	.13	-.10	-.13	-.13
49	-.18	-.20	-.19	-.22	-.22	-.21
Constant	-1155.16	-1180.54	-1171.73	-1175.18	-1182.95	-1175.34

*Students in three of the career pattern groups were initially enrolled in Occupational programs. Students in the remaining three career pattern groups were initially enrolled in Transfer programs.

Approximate F for matrix = 40.83
df for F matrix = 19/7915

Key for Career Pattern Codes (Table 42A continued)

O-GO: Initial program, Occupational; graduated in Occupational program
O-GT: Initial program, Occupational; graduated in Transfer program
O-NG: Initial program, Occupational; nongraduate
T-GO: Initial program, Transfer; graduated in Occupational program
T-GT: Initial program, Transfer; graduated in Occupational program
T-NG: Initial program, Transfer; nongraduate

TABLE 42B

(Groups initially enrolled in Occupational or Transfer programs)
Summary of Results from Stepwise Discriminant Analysis
of Six 2-Year Career (Curriculum) Patterns

Step No.	Variable No. Entered	Variable No. Removed	F-Value	U-Statistic
1	46	-	275.66	.85
2	32	-	112.86	.79
3	28	-	52.83	.76
4	27	-	47.66	.74
5	36	-	37.26	.73
6	5	-	34.93	.71
7	20	-	26.19	.70
8	2	-	26.88	.69
9	3	-	27.00	.67
10	29	-	23.83	.66
11	6	-	18.74	.66
12	44	-	16.73	.65
13	24	-	16.28	.64
14	21	-	14.04	.64
15	18	-	12.06	.63
16	7	-	9.61	.63
17	1	-	6.73	.63
18	49	-	5.38	.62
19	16	-	4.75	.62

TABLE 43A

Multiple Discriminant Analysis of Six 2-Year Career (Curriculum) Patterns*

(Groups enrolled in Occupational programs last term in college)

Variable No.	Discriminant Functions O_1-GO_1 (N=17)	 O_1-GO_2 (N=731)	 O_1-NGO_1 (N=64)	 O_1-NGO_2 (N=1983)	 U-GO (N=127)	 U-NGO (N=407)
2	1.05	1.04	1.03	1.03	1.08	1.03
5	3.55	3.88	3.72	3.72	3.84	3.64
7	.48	.27	.23	.22	.25	.17
10	2.62	2.59	2.50	2.46	2.54	2.44
18	1.47	1.42	1.75	1.51	1.53	1.57
24	2.44	3.14	2.89	2.86	3.00	2.80
26	4.12	4.16	4.16	4.26	4.14	4.25
27	3.09	3.31	3.28	3.20	3.31	3.15
28	-6.78	-6.92	-6.83	-6.74	-6.95	-6.72
29	40.78	40.93	41.24	41.17	40.93	41.10
30	19.36	19.59	19.70	19.63	19.58	19.59
41	.08	.08	.08	.08	.08	.08
46	-1.53	-1.52	-1.55	-1.55	-1.67	-1.68
Constant	-2350.92	-2385.70	-2413.89	-2400.58	-2385.77	-2388.98

*Each group included only students who were in Occupational programs during their last term in college, but the six groups differed from one another in overall (2-year) career pattern.

Approximate F for matirx = 11.54
df for F matirx = 13/3311

Key for Career Pattern Codes

O_1-GO_1 : Initial program, Occupational; graduated in same Occupational program
O_1-GO_2 : Initial program, Occupational; graduated in different Occupational program
O_1-NGO_1 : Initial program, Occupational; last program, same Occupational; nongraduate
O_1-NGO_2 : Initial program, Occupational; last program, different Occupational; nongraduate
U-GO : Initial program, Undecided; graduated in Occupational program
U-NGO : Initial program, Undecided; last program, Occupational; nongraduate

TABLE 43B

Summary of Results from Stepwise Discriminant Analysis of Six 2-Year Career (Curriculum) Patterns
(Groups enrolled in Occupational programs last term in college)

	Variable No.			
Step No.	Entered	Removed	F-Value	U-Statistic
1	28	-	52.19	.92
2	46	-	14.58	.90
3	26	-	14.47	.88
4	2	-	10.85	.87
5	27	-	8.44	.86
6	29	-	10.77	.84
7	41	-	8.51	.83
8	24	-	6.42	.83
9	7	-	6.34	.82
10	18	-	5.60	.81
11	10	-	4.74	.80
12	5	-	3.41	.80
13	30	-	3.24	.80

criterion categories, each of which included only students who held occupational program status during their last term in college. However, a new criterion consideration is introduced in this analysis in that four of the six criterion groups within the set were identified according to the sameness or difference of intital occupational programs versus occupational programs during the last term in college. The most effective predictor battery consisted of thirteen variables, seven of which were psychosocial and personal trait variables. These included Student Preference Scale 1, (student's estimate of his) Likelihood of Success in B.A. programs, Arithmetic Reasoning, the Achievement and Independence scales of the Work Values Inventory, avowed Satisfaction with College, and Prestige Differential 3 (prestige of the student's own curricular program relative to that suggested by a faculty member or counselor).

The six curriculum patterns selected for analysis in Tables 44A & B precisely parallel those for which findings were summarized in Tables 43A & B. However, the criterion categories studied in this sixth analysis each included only students who held transfer program status during their last term in college. Four of the six criterion groups were identified according to the sameness or difference of transfer program during initial term in college versus transfer program during last term in college. A relatively large number of variables, 20 in all, comprised the predictor team resulting from the mutivariate analysis. An approximate overall F-value of 10.83 was found for the matrix, with 20/2615 degrees of freedom.

The seventh multiple discriminant analysis introduced a new curriculum pattern criterion by which students were categorized. This

TABLE 44A

Multiple Discriminant Analysis of Six 2-Year Career (Curriculum) Patterns*
(Groups enrolled in Transfer programs last term in college)

	Discriminant Functions					
Variable No.	T_1GT_1 (N=218)	T_1GT_2 (N=403)	T_1NGT_1 (N=449)	T_1NGT_2 (N=933)	U-GT (N=158)	U-NGT (N=479)
2	.70	.70	.68	.68	.67	.63
3	.72	.72	.73	.73	.75	.76
5	2.93	2.87	2.64	2.66	2.77	2.44
16	.49	.48	.51	.49	.46	.58
24	5.75	5.76	5.41	5.35	5.63	5.29
25	.95	.98	.94	.97	1.03	1.06
26	1.54	1.53	1.53	1.52	1.47	1.46
27	5.56	5.56	5.55	5.48	5.44	5.36
28	-2.69	-2.64	-2.66	-2.54	-2.59	-2.45
31	1.02	1.02	1.01	1.02	1.00	1.00
32	-.82	-.86	-.64	-.56	-.47	-.29
34	2.88	2.87	2.93	2.89	2.85	2.87
36	.04	.04	.03	.03	.04	.04
37	.52	.54	.56	.57	.57	.59
40	.00	.00	.00	.00	.00	.00
44	.03	.05	.07	.00	.16	.13
45	-.14	-.16	-.17	-.17	-.06	-.04
46	.00	.01	.00	.00	.30	.28
47	-.36	-.41	-.37	-.36	-.31	-.28
49	-.08	-.08	-.11	-.07	-.05	-.04
Constant	-334.82	-336.27	-334.36	-332.23	-331.56	-330.11

(Table 44A continued)

*Each group included only students who were in Transfer programs during their last term in college, but the six groups differed from one another in overall (2-year) career pattern.

Approximate F for matrix = 10.83
df for F matrix = 20/2615

Key for Career Pattern Codes

T_1-GT_1 : Initial prog., Transfer; graduated in same Transfer prog.
T_1-GT_2 : Initial prog., Transfer; graduated in different Transfer prog.
T_1-NGT_1 : Initial prog., Transfer; last prog., same Transfer; nongrad.
T_1-NGT_2 : Initial prog., Transfer; last prog., different Transfer; nongrad.
U-GT : Initial prog., Undecided; graduated in Transfer prog.
U-NGT : Initial prog., Undecided; last prog., Transfer; nongrad.

TABLE 44B

Summary of Results from Stepwise Discriminant Analysis of Six 2-Year Career (Curriculum) Patterns

(Groups enrolled in Transfer programs last term in college)

Step No.	Variable No. Entered	Variable No. Removed	F-Value	U-Statistic
1	46	-	63.46	.89
2	28	-	20.80	.85
3	5	-	14.10	.83
4	45	-	14.12	.81
5	25	-	10.10	.79
6	2	-	9.15	.78
7	44	-	8.93	.77
8	36	-	8.34	.76
9	3	-	7.67	.74
10	27	-	6.37	.74
11	24	-	6.10	.73
12	37	-	6.10	.72
13	32	-	8.63	.71
14	47	-	5.56	.70
15	40	-	4.53	.69
16	16	-	4.41	.69
17	49	-	4.13	.68
18	34	-	3.98	.68
19	31	-	3.98	.67
20	26	-	3.72	.67

criterion focused on curriculum changes signifying shifts in the level of educational-occupational aspiration. Operationally, the level of aspiration criterion was defined as follows: Any student who changed from an initial occupational program to a last-term-in-college transfer program was classified with the "Raised" aspiration level group; any student who changed programs in the reverse order, transfer to occupational, was classified with the "Lowered" aspiration level group; any student who held to his original program status (occupational or transfer) was classified with the corresponding "Stable" level of aspiration group; any student who moved from an initial program status of "Undecided" to either a last-term-in-college occupational or transfer program status was classified with the corresponding "Delay-Occupational" or "Delay-Transfer" group. The results presented in Tables 45A & B show that the most effective combination of 18 predictor variables was able to categorize students into the six level-of-aspiration criterion groups with a considerable degree of accuracy.

An important byproduct of this analysis is found in the relatively small number of students (434) who changed from transfer to occupational programs and who were thus classifiable with the "Lowered" level of aspiration group. Well over four times as many students fell in the opposite grouping ("Raised" level of aspiration involving shifts from occupational to transfer programs). These findings are consistent with the general results of the multiple discriminant analyses which show the potency of campus and community environmental influences upon student educational career patterns. Such findings also support the conclusions of other investigators (See section on Career Patterns as a Function of Initial Curriculum Choice in the research literature

TABLE 45A

Multiple Discriminant Analysis of Six 2-Year Career (Curriculum) Patterns*
(Students' change patterns related to educational-occupational aspiration level)

	Discriminant Functions					
Variable No.	RAISED (N=1857)	LOWERED (N=434)	STABLE-O (N=2795)	STABLE-T (N=2003)	DELAY-O (N=534)	DELAY-T (N=637)
1	1.65	1.69	1.59	1.68	1.63	1.70
2	.43	.46	.43	.47	.43	.44
3	.81	.80	.81	.79	.81	.81
5	2.15	2.20	2.01	2.30	1.92	2.16
6	3.05	2.59	3.23	2.69	3.20	2.77
7	1.61	1.58	1.59	1.60	1.55	1.56
16	.25	.16	.20	.20	.19	.25
18	1.36	1.45	1.28	1.40	1.36	1.39
20	1.36	1.28	1.43	1.22	1.41	1.31
21	.75	.84	.79	.87	.79	.83
27	.71	.63	.58	.67	.54	.67
29	23.95	24.05	23.88	24.03	23.83	24.01
33	-2.21	-2.24	-2.09	-2.22	-2.08	-2.22
43	-.02	-.02	-.02	-.02	-.02	-.02
44	-.19	-.26	-.18	-.26	-.20	-.18
46	-.13	-.36	-.04	-.34	-.15	-.15
48	-.23	-.27	-.24	-.25	-.29	-.24
49	-.30	-.32	-.31	-.34	-.31	-.31
Constant	-1085.71	-1089.72	-1072.69	-1089.93	-1067.63	-1088.09

*Each student group represents a different two-year change pattern related to educational-occupational aspiration level.

Approximate F for matrix = 33.80
df for F matrix = 18/8237

(table continued on next page)

Key for Career Pattern Codes (Table 45A continued)

RAISED : Initial program, Occupational; last program, Transfer
LOWERED : Initial program, Transfer; last program, Occupational
STABLE-O: Initial program, Occupational; last program, Occupational
STABLE-T: Initial program, Transfer; last program, Transfer
DELAY-O : Initial program, Undecided; last program, Occupational
DELAY-T : Initial program, Undecided; last program, Transfer

TABLE 45B

Summary of Results from Stepwise Discriminant Analysis of Six 2-Year Career (Curriculum) Patterns
(Students' change patterns related to educational-occupational aspiration level)

Step No.	Variable No. Entered	Variable No. Removed	F-Value	U-Statistic
1	46	-	248.64	.86
2	27	-	81.46	.82
3	33	-	82.81	.78
4	20	-	28.28	.77
5	2	-	25.51	.76
6	29	-	19.45	.75
7	3	-	16.94	.74
8	44	-	15.79	.73
9	6	-	13.93	.73
10	5	-	20.19	.72
11	18	-	15.02	.71
12	21	-	10.41	.71
13	1	-	6.92	.71
14	49	-	6.31	.70
15	16	-	5.82	.70
16	48	-	4.53	.70
17	43	-	4.17	.70
18	7	-	3.08	.70

review, Chapter 2) to the effect that the junior college experience commonly raises the educational aspiration level of students.

The eighth and ninth multivariate analysis treatments tested the power of the 49 predictor variables as a set to categorize students into seven career patterns, each of which involved post-college employment status. Only those students whose followup records showed them to be employed after college were included in these analyses. For purposes of differentiating the subjects on employment criteria, three categories of post-college employment status were defined -- AVL (employed in field for which not college-trained but for which training program was available in student's college); OTHR (employed in field for which not college-trained and for which no training program was available in student's college); and REL (employed in field related to student's curricular program in college). Tables 46A & B show the performance of the predictor variables in classifying linkages between initial college program status and post-college employment status. In Tables 47A & B, the data are summarized for linkages between program status during the last term in college and post-college employment status. In both analyses, maximum separation of the criterion groups was shown to be produced by a large and diversified combination of variables. In the examination of the relationship between initial college program status and post-college employment status (Tables 46A & B), more than half of the full set of independent variables (26 of 49 variables) were entered as members of the effective predictor set.

Results for the last of the ten multiple discriminant analysis treatments are given in Tables 48A & B. In this analysis, the criterion was defined as "Completion" versus "Noncompletion" of any 2-year

TABLE 46A

Multiple Discriminant Analysis of Seven Career Patterns*

(Linkages between initial college program status and post-college employment status)

	Discriminant Functions						
Variable No.	U-AVL (N=148)	U-OTHR (N=495)	T-AVL (N=162)	T-OTHR (N=1314)	O-AVL (N=481)	O-OTHR (N=1863)	O-REL (N=224)
1	.36	.40	.43	.42	.28	.39	.21
2	.16	.13	.15	.18	.15	.12	.13
3	.81	.82	.81	.80	.83	.83	.81
5	1.42	1.86	1.71	1.98	1.56	1.77	1.52
6	5.54	4.97	4.72	4.77	5.41	5.22	5.86
7	2.47	2.55	2.57	2.56	2.53	2.59	2.54
11	.59	.52	.40	.50	.58	.49	.56
16	.29	.40	.35	.36	.38	.40	.33
18	2.04	2.08	1.97	2.11	1.91	2.04	1.77
20	.71	.72	.74	.61	.79	.78	.80
21	-.68	-.77	-.58	-.71	-.79	-.82	-.60
22	.13	.26	.31	.26	.20	.28	.35
23	31.43	32.14	30.82	31.88	31.09	31.64	31.26
25	3.38	3.42	3.23	3.36	3.32	3.41	3.39
26	6.30	6.42	6.27	6.46	6.31	6.42	6.40
28	1.46	1.71	1.46	1.68	1.54	1.72	1.54
29	37.65	37.94	37.47	37.91	37.58	37.86	37.78
32	27.85	28.14	27.24	27.93	27.78	28.18	28.08
34	4.62	4.54	4.54	4.53	4.56	4.58	4.60
35	-2.64	-2.65	-2.58	-2.64	-2.61	-2.64	-2.63
37	4.15	4.15	4.07	4.11	4.12	4.14	4.16
42	.46	.47	.43	.47	.45	.47	.47
44	-.32	-.31	-.36	-.35	-.28	-.30	-.27
45	.15	.16	.02	.03	.20	.15	.19
46	1.38	1.39	1.23	1.25	1.48	1.42	1.49
47	-.44	-.40	-.43	-.47	-.41	-.39	-.31
Constant	-1983.10	-2015.52	-1951.79	-2008.37	-1973.11	-2010.12	-1999.42

(table continued on next page)

(Table 46A continued)

*Each student group represents a particular linkage between initial college program status and post-college employment status.

Approximate F for matrix = 18.14
df for F matrix = 26/4655

Key for Career Pattern Codes

U-AVL : Initial program, Undecided; employed after college in field for which not college-trained but for which training program was available in student's college.

U-OTHR: Initial program, Undecided; employed after college in field for which not college-trained and for which no training program was available in student's college.

T-AVL : Initial program, Transfer; employed after college in field for which not college-trained but for which training program was available in student's college.

T-OTHR: Initial program, Transfer; employed after college in field for which not college-trained and for which no training program was available in student's college.

O-AVL: Initial program, Occupational; employed after college in field for which not college-trained but for which training program was available in student's college.

O-OTHR: Initial program Occupational; employed after college in field for which not college-trained and for which no training program was available in student's college.

O-REL : Initial program, Occupational; employed after college in field related to student's curricular program in college.

TABLE 46B

(Linkages between initial college program status and post-college employment status)
Summary of Results from Stepwise Multiple Discriminant Analysis of Seven Career Patterns

Step No.	Variable No.		F-Value	U-Statistic
	Entered	Removed		
1	46	-	130.25	.85
2	45	-	31.64	.82
3	28	-	28.98	.79
4	25	-	21.35	.77
5	42	-	24.93	.74
6	32	-	22.09	.72
7	21	-	20.83	.70
8	20	-	14.97	.69
9	18	-	16.66	.68
10	29	-	14.54	.66
11	26	-	18.77	.65
12	35	-	16.70	.63
13	5	-	14.48	.62
14	6	-	14.30	.61
15	2	-	12.82	.60
16	37	-	12.35	.59
17	3	-	9.56	.58
18	47	-	8.35	.58
19	1	-	5.47	.57
20	34	-	5.04	.57
21	22	-	3.88	.57
22	23	-	3.79	.56
23	44	-	3.65	.56
24	7	-	3.07	.56
25	11	-	2.81	.56
26	16	-	2.96	.56

TABLE 47A

Multiple Discriminant Analysis of Seven Career Patterns*
(Linkages between last college program status and post-college employment status)

	Discriminant Functions						
Variable No.	U-AVL (N=6)	U-OTHR (N=50)	T-AVL (N=274)	T-OTHR (N=2320)	O-AVL (N=487)	O-OTHR (N=1302)	O-REL (N=248)
1	.62	.85	.77	.78	.66	.74	.61
2	.53	.51	.49	.49	.49	.47	.48
4	5.83	4.75	4.71	5.06	4.99	5.11	4.71
5	.11	1.21	.94	1.20	.81	1.06	.88
6	3.98	4.39	4.33	4.27	4.72	4.40	5.03
18	2.60	2.49	2.42	2.52	2.34	2.50	2.25
20	1.56	1.72	1.70	1.64	1.75	1.72	1.79
21	-.92	-1.08	-1.07	-1.11	-1.06	-1.14	-.96
23	25.05	29.98	30.16	30.24	29.23	29.95	29.36
25	3.30	3.42	3.19	3.33	3.33	3.39	3.34
26	5.72	6.01	5.84	6.07	5.94	6.04	6.00
27	.73	.60	.77	.65	.56	.49	.56
28	3.15	3.76	3.17	3.56	3.42	3.61	3.41
29	36.42	36.99	36.27	36.75	36.56	36.79	36.67
32	28.01	29.33	28.07	29.11	28.86	29.28	29.10
33	-.39	-.48	-.56	-.75	-.59	-.62	-.58
35	-2.09	-2.10	-2.06	-2.11	-2.10	-2.12	-2.12
37	3.81	3.86	3.76	3.78	3.82	3.83	3.82
41	.04	.05	.04	.04	.04	.04	.04
45	.04	-.15	-.08	-.11	-.05	-.07	-.04
46	.93	1.06	.98	.93	1.02	1.00	1.07
47	-.18	-.18	-.29	-.24	-.18	-.19	-.15
Constant	-1823.30	-1908.71	-1817.85	-1882.19	-1849.53	-1878.50	-1864.24

*Each student group represents a particular linkage between last college program status and post-college employment status.

Approximate F for matrix = 18.62
df for F matrix = 22/4659

(table continued on next page)

Key for Career Pattern Codes (Table 47A continued)

U-AVL : Last program, Undecided; employed after college in field for which not college-trained but for which training program was available in student's college.

U-OTHR: Last program, Undecided; employed after college in field for which not college-trained and for which no training program was available in student's college.

T-AVL : Last program, Transfer; employed after college in field for which not college-trained but for which training program was available in student's college.

T-OTHR: Last program, Transfer; employed after college in field for which not college-trained and for which no training program was available in student's college.

O-AVL : Last program, Occupational; employed after college in field for which not college-trained but for which training program was available in student's college.

O-OTHR: Last program, Occupational; employed after college in field for which not college-trained and for which no training program was available in student's college.

O-REL : Last program, Occupational; employed after college in field related to student's curricular program in college.

TABLE 47B

(Linkages between last college program status and post-college employment status)
Summary of Results from Stepwise Multiple Discriminant Analysis
of Seven Career Patterns

Step No.	Variable No. Entered	Variable No. Removed	F-Value	U-Statistic
1	27	-	59.81	.92
2	33	-	44.65	.87
3	46	-	40.09	.83
4	41	-	23.84	.81
5	25	-	22.02	.78
6	28	-	24.07	.76
7	32	-	34.14	.73
8	37	-	17.28	.71
9	26	-	20.03	.69
10	29	-	16.25	.68
11	35	-	20.70	.66
12	5	-	14.98	.65
13	47	-	9.70	.64
14	18	-	9.96	.63
15	21	-	9.14	.63
16	6	-	7.11	.62
17	1	-	6.51	.61
18	23	-	5.39	.61
19	20	-	5.33	.61
20	45	-	3.45	.60
21	4	-	3.39	.60
22	2	-	2.94	.60

TABLE 48A

Multiple Discriminant Analysis of Two 2-Year Career (Curriculum) Patterns* (Degree completion vs. noncompletion categories)

	Discriminant Functions	
Variable No.	COMP. (N=2144)	NONCOMP (N=6626)
1	.92	.98
2	.43	.39
3	.72	.74
5	1.12	.91
7	2.04	1.98
8	1.43	1.47
24	5.19	4.84
26	1.05	1.07
28	.11	.23
34	2.00	2.04
43	.00	.00
Constant	-143.88	-145.37

*Students are dichotomized, one group consisting of those who earned a 2-year college degree, the other of those who failed to earn a 2-year college degree within two years of college entrance.

Approximate F for matrix=90.94
df for F matrix = 11/8758

Key for Category Codes

COMP :	Completed a 2-year college degree program within two years of college entrance.
NONCOMP:	Failed to complete a 2-year college degree program within two years of college entrance.

TABLE 48B

(Degree completion vs. noncompletion categories)
Summary of Results from Stepwise Discriminant Analysis of Two 2-Year Career (Curriculum) Patterns

Step No.	Variable No. Entered	Variable No. Removed	F-Value	U-Statistic
1	28	-	460.13	.95
2	24	-	147.51	.93
3	7	-	106.87	.92
4	5	-	63.03	.91
5	2	-	40.22	.91
6	3	-	43.63	.90
7	34	-	37.98	.90
8	26	-	23.24	.90
9	8	-	16.34	.89
10	1	-	12.87	.89
11	43	-	10.37	.89

degree program within two academic years dating from initial enrollment in college. A combination of 11 variables was shown to effect a sharp distinction between the successful (2-year degree) and unsuccessful (no degree) students. This predictor set included socioeconomic status, both Student Preference Scales, Likelihood of Success in B.A. program, one academic self-confidence item (Satisfaction with College), Arithmetic Reasoning, the Creativity scale of the Work Values Inventory, and four environmental indicators. An interesting disclosure, ancillary to the main objective of the analysis, was that students failing to complete 2-year degree programs within the span of two academic years outnumbered students completing such degree programs by more than a 3:1 ratio.

Summary of General Results of Multiple Discriminant Analyses

1. For each of the ten sets of two-year educational career patterns, it was possible to identify a combination of predictor variables capable of differentiating the criterion groups (career or curriculum patterns) with a degree of precision far exceeding chance. Matrix F-values for the ten analyses ranged from 10.83 with 20/2615 degrees of freedom (Table 44A) to 90.94 with 11/8758 degrees of freedom (Table 48A).
2. Relatively large combinations of variables emerged as effective predictor sets in most of the analyses. The average set included 17.6 variables. The range was 11 variables (Table 48B) to 26 variables (Table 46B).
3. The discriminating predictors which were identified in each analysis included both environmental and personal trait - psychosocial variables. In some of the analyses, the effective predictor sets

consisted mainly of environment variables; e.g., Tables 40A & B, students initially enrolled in transfer programs. In a few others, the emerging predictor sets comprised chiefly psychosocial and personal trait variables; e.g., 2-year degree completion versus noncompletion.

4. The individual predictor variables contributed unevenly to the effective discrimination between criterion groups across the ten sets of educational career patterns. Variables nos. 9, 12, 13, 15, 17, 19, and 39 (See Table 35 for identification) failed to make significant contributions in any of the treatments. Variables nos. 2, 5, 7, 27, and 28 (See Table 35 for identification) emerged as discriminating variables in eight or more of the ten multivariate analyses. One of the Junior College Student Inventory academic self-confidence items (Likelihood of Success in B.A. programs) was entered in the predictor sets emerging from all ten analyses.
5. Inspection of the student frequencies associated with the various 2-year educational career patterns reveals a high degree of instability in initial curricular program choices; many shifts in program objectives during the junior college tenure, including a substantial increase in level of educational aspiration; and a sizable proportion of matriculants who fail to complete 2-year degree programs within the normally established time boundaries.

Means Contrasts between Selectively Paired Variables

In order that the separate discrimination power of each of the 49 predictor variables might be tested, means contrasts were performed on 33 selected pairs of 2-year educational career patterns. Conventional methods of testing differences between means were not applicable here since the prior multivariate analyses and F tests for the matrices had already shown overall significance. An appropriate test would be one not requiring that post hoc comparisons of estimated means differences be independent. For this purpose, an algebraic modification of the Scheffé (1959) method of calculating the confidence interval was employed. The Scheffé procedure is applicable to groups of unequal sizes and is suitable for examining any or all pairs of means.

Tables 49 to 81 present the data for the post hoc means contrasts which were examined by the Scheffé-type test cited above. Each of the 33 tables enumerates the predictor variables, lists the obtained mean values for the two criterion groups (2-year educational career patterns) to be compared, and shows the estimate of the mean difference, the estimated standard error, and the resulting F ratio. The $\bar{X}_1$ symbol in each table refers to the mean value for the career pattern group listed first in the title of the table; the $\bar{X}_2$ symbol refers to the second-listed criterion group. At the foot of each table are to be found the sizes of the two groups and values specifying the .01 and .001 levels of confidence. The initial table in the series (Table 49) presents results for the entire array of 49 predictor variables. Variables yielding F ratios exceeding the .01 probability level are indicated by an asterisk; those showing ratios exceeding the .001 level are marked by a double asterisk. All variables which did not produce significant differences between the paired criterion groups are denoted by the symbol N.S. in the Probability column. In all succeeding tables (50 - 81), results are presented only for those variables yielding differences significant at either the .01 or .001 level. Identification of the enumerated variables in any table can be made by reference to Table 35 in which names and numbers of all predictors in the full series are paired.

Tables 49 through 52 show results relative to the discriminating power of individual predictors when the group of students initially enrolled in and subsequently completing occupational programs is successively compared with four other career pattern criterion groups. In Table 49, comparison is made with students initially entering but failing to complete occupational programs within two years. The findings disclose that the "successful" student group (O-GO) scored higher on the S1 (Intellectual Environment) scale of the Student Preference Scales, Arithmetic Reasoning (GATB), the Achievement scale on the Work Values Inventory, and the Satisfaction with College item on the Junior College Student Inventory. Environment variables on which the occupational program graduates and nongraduates differed significantly included all four Junior College Environment Scales, the F1 scale of the Faculty Preference Scales, and the Higher Education and Marital Status indices of the Community Characteristics Index. With reference to the two last-named variables, the results indicate that students in the "successful" group were more likely to be enrolled in colleges located in communities with higher percentages of college-trained residents but with lower total percentages of married adults.

Differentiation between those students beginning and later completing occupational programs and those beginning in occupational programs but later completing transfer programs is accomplished almost entirely by the environment variables. (Table 50) Only one personal variable (PD4) was associated with a significant contrast between criterion group means. The PD4 finding suggests the rather puzzling conclusion that students who shifted from occupational to transfer programs and completed them ranked their original programs higher in prestige than did students who remained in and completed their occupational programs. Table 51 reveals that students beginning and completing occupational programs were distinguishable at significant probability levels on 18 variables from students who initially enrolled in occupational programs, then switched to transfer programs but did not graduate. The differentiating variables were almost evenly divided between environment measures and psychosocial and personal measures. In accordance with logical expectation, students who persisted in their occupational programs and graduated had expressed greater Satisfaction with College (Variable 24) shortly after enrolling than had those who later switched unsuccessfully to transfer programs (i.e., noncompletion of transfer programs). Table 52 compares score patterns for two student groups who initially enrolled in occupational programs and later changed to transfer programs. One group (O-GT) included only students who successfully completed their transfer programs; the other (O-NGT) consisted wholly of students shifting to transfer programs but failing to complete them within two years. The successful group scored significantly higher in self-perceived Likelihood of Success in a B.A. program, in Arithmetic Reasoning (GATB), and on the Satisfaction with College item. The substantially higher standing of the unsuccessful group on the Socioeconomic Class and Income factors of the Community Characteristics Index suggests that social pressures identified with the communities in which their colleges were located may have contributed to the decision of students in this criterion group to switch to

TABLE 49

Post Hoc Means Contrast (Scheffé Type Test) between O-GO and O-NGO Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
1	4.33	4.58	-.24	.15	1.55	N.S.
2	56.19	54.32	1.86	.74	2.50	**
3	98.75	100.00	-1.25	1.09	1.13	N.S.
4	2.61	2.59	.01	.05	.32	N.S.
5	3.58	3.42	.16	.09	1.69	N.S.
6	3.52	3.40	.11	.05	1.96	N.S.
7	13.49	12.91	.57	.26	2.15	*
8	11.17	11.24	-.07	.22	.32	N.S.
9	9.88	9.85	.03	.21	.13	N.S.
10	13.24	12.87	.37	.17	2.08	*
11	12.52	12.35	.17	.19	.87	N.S.
12	12.94	12.73	.21	.19	1.07	N.S.
13	13.64	13.41	.23	.16	1.41	N.S.
14	12.87	12.88	-.01	.20	.07	N.S.
15	11.27	11.16	.10	.19	.54	N.S.
16	8.30	8.67	-.36	.25	1.40	N.S.
17	11.71	11.66	.05	.20	.27	N.S.
18	11.47	11.68	-.21	.19	1.06	N.S.
19	11.26	11.28	-.02	.21	.13	N.S.
20	12.91	12.85	.05	.18	.31	N.S.
21	12.26	11.98	.28	.21	1.31	N.S.
22	11.77	11.61	.16	.18	.84	N.S.
23	1.94	1.91	.03	.02	1.25	N.S.
24	3.58	3.40	.19	.06	2.83	**
25	57.38	55.09	2.29	1.05	2.17	*
26	20.48	21.92	-1.44	.47	3.04	**
27	42.43	44.14	-1.70	.44	3.82	**
28	9.97	12.98	-3.00	.43	6.94	**
29	79.30	80.20	-.89	.16	5.28	**
30	54.31	53.96	.35	.30	1.13	N.S.
31	70.35	68.15	2.19	2.37	.92	N.S.
32	8.06	6.97	1.09	.15	6.90	**
33	-6.00	-6.72	.71	.39	1.82	N.S.
34	47.54	49.66	-2.12	.48	4.38	**
35	-6.72	-5.09	-1.63	1.52	1.06	N.S.
36	453.14	419.99	33.15	22.32	1.48	N.S.
37	-17.44	-15.84	-1.59	1.09	1.46	N.S.
38	-42.27	-43.66	1.39	1.69	.82	N.S.
39	4751.20	4860.63	-109.43	295.02	.37	N.S.
40	-155.18	-188.95	33.77	35.95	.93	N.S.
41	1994.59	1979.03	15.55	30.81	.50	N.S.
42	23.20	23.57	-.37	2.38	.15	N.S.
43	9.22	9.42	-.20	27.43	.00	N.S.
44	-.08	-.19	.10	.31	.35	N.S.
45	.40	.05	.34	.32	1.05	N.S.
46	.55	.30	.24	.29	.81	N.S.
47	.32	.11	.20	.33	.62	N.S.
48	-.29	-.54	.24	.34	.71	N.S.
49	-1.19	-1.20	.00	.47	.01	N.S.

(cont. on next page)

O-Go (N_1=748)
O-NGO (N_2=2047)

c.v. of F at α = .01 = 2.08
c.v. of F at α = .001 = 2.48

Key to Symbols: (Table 49 continued)

O-GO: Initial program, Occupational; graduated in Occupational program

O-NGO: Initial program, Occupational; last program, Occupational; nongraduate

$\bar{X}_1$: Mean for O-GO career pattern

$\bar{X}_2$: Mean for O-NGO career pattern

$\hat{\psi}$: Estimate of means difference

σ_{ψ}: Estimated standard error of means difference

$F_{\hat{\psi}}$: F ratio for means difference

N.S.: Difference between means not significant

*: Difference between means significant at .01 level

**: Difference between means significant at .001 level

TABLE 50

Post Hoc Means Contrast (Scheffé Type Test) between O-GO and O-GT Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
26	20.48	23.10	-2.61	.68	3.82	**
27	42.43	46.85	-4.41	.64	6.88	**
28	9.97	12.82	-2.84	.62	4.53	**
29	79.30	80.46	-1.15	.24	4.72	**
30	54.31	53.20	1.10	.44	2.48	*
32	8.06	6.77	1.29	.22	5.67	**
33	-6.00	-7.19	1.18	.56	2.09	*
35	-6.72	.42	-7.15	2.21	3.23	**
47	.32	-.77	1.09	.47	2.28	*

O-GO (N_1=748)
O-GT (N_2=402)

c.v. of F at α = .01 = 2.08
c.v. of F at α = .001 = 2.48

Key to Symbols:

O-GO: Initial program, Occupational; graduated in Occupational program
O-GT: Initial program, Occupational; graduated in Transfer program
$\bar{X}_1$: Mean for O-GO career pattern
$\bar{X}_2$: Mean for O-GT career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 51

Post Hoc Means Contrast (Scheffé Type Test) between O-GO and O-NGT Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
1	4.33	4.76	-.42	.16	2.55	**
2	56.19	54.49	2.12	.78	2.69	**
16	8.30	8.97	-.66	.27	2.42	*
18	11.47	11.95	-.48	.20	2.32	*
24	3.58	3.33	.25	.07	3.60	**
25	57.38	53.17	4.21	1.11	3.78	**
26	20.48	21.99	-1.50	.49	3.02	**
27	42.43	45.74	-3.30	.46	7.06	**
28	9.97	14.62	-4.65	.45	10.17	**
29	79.30	80.27	-.96	.17	5.44	**
32	8.06	6.60	1.46	.16	8.83	**
33	-6.00	-7.71	1.71	.41	4.15	**
34	47.54	49.77	-2.23	.51	4.38	**
35	-6.72	-1.44	-5.28	1.61	3.28	**
37	-17.44	-14.48	3.00	1.15	2.60	**
45	.40	-.39	.79	.34	2.32	*
46	.55	-.26	.81	.31	2.59	**
47	.32	-.54	.87	.34	2.49	**

O-GO (N_1=748)

O-NGT (N_2=1455)

c.v. of F at α = .01 = 2.08

c.v. of F at α = .001 = 2.48

Key to Symbols:

O-GO:	Initial program, Occupational; graduated in Occupational program
O-NGT:	Initial program, Occupational; last program, Transfer; nongraduate
$\bar{X}_1$:	Mean for O-GO career pattern
$\bar{X}_2$:	Mean for O-NGT career pattern
*:	F-value significant at .01 level
**:	F-value significant at .001 level

TABLE 52

Post Hoc Means Contrast (Scheffé Type Test) between O-GT and O-NGT Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
5	3.86	3.56	.30	.12	2.40	*
7	13.79	13.02	.76	.34	2.20	*
24	3.52	3.33	.18	.08	2.13	*
25	56.14	53.17	2.97	1.39	2.13	*
28	12.82	14.62	-1.80	.57	3.15	**
31	64.53	71.97	-7.43	3.13	2.37	*
34	48.16	49.77	-1.61	.63	2.53	**
42	19.37	27.21	-7.83	3.14	2.49	**

O-GT (N_1=402) c.v. of F at α = .01 = 2.08

O-NGT (N_2=1455) c.v. of F at α = .001 = 2.48

Key to Symbols:

O-GT: Initial program, Occupational; graduated in Transfer program
O-NGT: Initial program, Occupational; last program, Transfer; nongraduate
$\bar{X}_1$: Mean for O-GT career pattern
$\bar{X}_2$: Mean for O-NGT career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

transfer programs. However, no significant difference was found on the socioeconomic status measure (family educational and occupational level) which derived from the Junior College Student Inventory.

Remaining tables (53 through 81) in this set may be interpreted in the same general manner as that above. The findings are largely self explanatory. The discussion which follows here will be confined chiefly to selected observations about results which appear particularly helpful to an understanding of environmental, psychosocial, and personal trait factors associated with the divergent educational career pattern of public junior and community college students.

Tables 53 and 54 present comparisons between students initially enrolling in and successfully completing transfer programs and two groups entering as transfer program students but failing to complete either transfer or occupational programs. The successful student group exhibited very similar profiles in both pairings. This group showed stronger academic self-confidence and higher satisfaction with college than did students who failed to earn 2-year degrees. Successful and unsuccessful students were further differentiated by several individual campus and community environmantal variables. Relatively few significant differences resulted from contrasts between several pairs of educational career patterns in which the comparison groups all consisted of students who were "Undecided" about curricular program at the time of college entrance. (Tables 55 - 58)

Eight hundred and eighty-six students were identified who were initially undecided about curricular programs and who failed to complete any 2-year degree program within two academic years. It is noteworthy that those initially undecided who later elected transfer pro-

TABLE 53

Post Hoc Means Contrast (Scheffé Type Test) between T-GT and T-NGT Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
5	3.93	3.69	.23	.09	2.37	*
24	3.63	3.40	.22	.07	2.88	**
25	54.60	51.77	2.83	1.19	2.36	*
28	12.49	13.95	-1.46	.48	3.02	**
34	47.91	49.47	-1.55	.52	2.99	**
37	-18.03	-14.42	-3.61	1.32	2.72	**

T-GT (N_1=621) c.v. of F at α = .01 = 2.08

T-NGT (N_2=1382) c.v. of F at α = .001 = 2.48

Key to Symbols:

T-GT:	Initial program, Transfer; graduated in Transfer program
T-NGT:	Initial program, Transfer; last program, Transfer; nongraduate
$\bar{X}_1$:	Mean for T-GT career pattern
$\bar{X}_2$:	Mean for T-NGT career pattern
*:	F-value significant at .01 level
**:	F-value significant at .001 level

TABLE 54

Post Hoc Means Contrast (Scheffé Type Test) between T-GT and T-NGO Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
5	3.93	3.62	.31	.13	2.32	*
24	3.63	3.34	.29	.10	2.78	**
27	45.50	44.20	1.30	.59	2.20	*
28	12.49	14.47	-1.98	.65	3.02	**
37	-18.03	-13.50	-4.53	1.80	2.51	**

T-GT (N_1=621) c.v. of F at α = .01 = 2.08

T-NGO (N_2=370) c.v. of F at α = .001 = 2.48

Key to Symbols:

T-GT:	Initial program, Transfer; graduated in Transfer program
T-NGO:	Initial program, Transfer; last program, Occupational; nongraduate
$\bar{X}_1$:	Mean for T-GT career pattern
$\bar{X}_2$:	Mean for T-NGO career pattern
*:	F-value significant at .01 level
**:	F-value significant at .001 level

TABLE 55

Post Hoc Means Contrast (Scheffé Type Test) between U-GT and U-NGT Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
1	6.74	4.92	1.82	.35	5.14	**
28	12.12	14.20	-2.08	.92	2.25	*

U-GT (N_1=158) c.v. of F at α = .01 = 2.08
U-NGT (N_2=479) c.v. of F at α = .001 = 2.48

Key to Symbols:

U-GT: Initial program, Undecided; graduated in Transfer program
U-NGT: Initial program, Undecided; last program, Transfer; nongraduate
$\bar{X}_1$: Mean for U-GT career pattern
$\bar{X}_2$: Mean for U-NGT career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 56

Post Hoc Means Contrast (Scheffé Type Test) between U-GT and U-GO Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
26	23.02	19.92	3.09	1.36	2.27	*
27	45.64	41.54	4.10	1.23	3.32	**
28	12.12	9.28	2.83	1.19	2.36	*
29	80.46	79.16	1.30	.48	2.68	**
32	6.76	8.45	-1.68	.44	3.76	**

U-GT (N_1=158) c.v. of F at α = .01 = 2.08
U-GO (N_2=127) c.v. of F at α = .001 = 2.48

Key to Symbols:

U-GT: Initial program, Undecided; graduated in Transfer program
U-GO: Initial program, Undecided; graduated in Occupational program
$\bar{X}_1$: Mean for U-GT career program
$\bar{X}_2$: Mean for U-GO career program
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 57

Post Hoc Means Contrast (Scheffé Type Test) between U-NGT and U-NGO Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
27	45.07	43.26	1.80	.69	2.58	**
28	14.20	12.46	1.73	.67	2.56	**
29	80.48	79.91	.57	.27	2.08	*
32	6.55	7.23	.68	.25	2.69	**
33	-8.09	-6.76	-1.33	.61	2.15	*

U-NGT (N_1=479) c.v. of F at α = .01 = 2.08
U-NGO (N_2=407) c.v. of F at α = .001 = 2.48

Key to Symbols:

U-NGT: Initial program, Undecided; last program, Transfer; nongraduate
U-NGO: Initial program, Undecided; last program, Occupational; nongraduate
$\bar{X}_1$: Mean for U-NGT career pattern
$\bar{X}_2$: Mean for U-NGO career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 58

Post Hoc Means Contrast (Scheffé Type Test) between U-GO and U-NGO Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
2	58.38	53.86	4.52	1.76	2.55	**
28	9.28	12.46	-3.17	1.02	3.11	**
32	8.45	7.23	1.22	.38	3.20	**

U-GO (N_1=127) c.v. of F at α = .01 = 2.08
U-NGO (N_2=407) c.v. of F at α = .001 = 2.48

Key to Symbols:

U-GO: Initial program, Undecided; graduated in Occupational program
U-NGO: Initial program, Undecided; last program, Occupational; nongraduate
$\bar{X}_1$: Mean for U-GO career pattern
$\bar{X}_2$: Mean for U-NGO career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

grams (unsuccessfully) were distinguishable from those later electing occupational programs (also unsuccessfully) only with regard to certain campus, faculty, and community environmental influences. (Table 57) Revealing comparisons of student characteristics are provided in Tables 59 and 60 with respect to a student group initially entering and later completing occupational programs versus two groups (one successful, one unsuccessful) who began their college career in transfer programs. The contrasted groups in both instances are differentiated by large numbers of individually examined variables. Among the measures on which the criterion groups showed the sharpest separation were certain environmental scales and the Prestige Differentials. As might be expected, both successful and unsuccessful transfer programs students came from families of higher socioeconomic status than typified occupational program students.

Owing to the tendency of academic and social pressures to raise the educational aspiration levels of 2-year college students, as was previously noted, it is uncommon to find students who shift successfully from initial transfer programs to subsequent occupational programs. Only 64 cases meeting this description were identified. In Table 61, this student group (T-GO) is contrasted with another group whose members initially entered and subsequently completed occupational programs (O-GO). Of the four predictor variables showing significant F-values, three are Prestige Differentials. On each of these measures, the group which shifted from transfer to occupational programs and completed them assigned significantly greater prestige to their own original (transfer) programs than did the group initially enrolled in occupational programs. Apparently the higher prestige status so commonly

TABLE 59

Post Hoc Means Contrast (Scheffé Type Test) between O-GO and T-GT Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\sigma_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
1	4.33	4.81	-.47	.22	2.13	*
2	56.19	58.28	-2.08	1.02	2.03	*
5	3.58	3.93	-.35	.12	2.74	**
14	12.87	12.18	.69	.30	2.29	*
20	12.91	12.08	.82	.27	3.02	**
21	12.26	12.96	-.69	.30	2.28	*
26	20.48	22.99	-2.50	.64	3.91	**
27	42.43	45.50	-3.06	.59	5.12	**
28	9.97	12.49	-2.51	.60	4.13	**
29	79.30	80.59	-1.28	.23	5.43	**
30	54.31	53.14	1.16	.42	2.73	**
32	8.05	6.77	1.27	.20	6.19	**
33	-5.99	-7.66	1.66	.54	3.03	**
44	-.08	-1.57	1.49	.41	3.56	**
45	.40	-2.54	2.94	.43	6.82	**
46	.55	-2.21	2.76	.36	6.30	**
47	.32	-2.73	3.05	.43	6.96	**
48	-.29	-1.30	1.01	.45	2.22	*

O-GO (N_1=748)
T-GT (N_2=621)

c.v. of F at α = .01 = 1.94
c.v. of F at α = .001 = 2.30

Key to Symbols:

O-GO: Initial program, Occupational; graduated in Occupational program
T-GT: Initial program, Transfer; graduated in Transfer program
$\bar{X}_1$: Mean for O-GO career pattern
$\bar{X}_2$: Mean for T-GT career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 60

Post Hoc Means Contrast (Scheffé Type Test) between O-GO and T-NG Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
1	4.33	4.88	-.54	.17	3.09	**
6	3.52	3.34	.17	.06	2.73	**
11	12.52	12.01	.51	.21	2.39	**
12	12.94	12.32	.62	.22	2.77	**
14	12.87	12.06	.80	.23	3.39	**
15	11.27	10.79	.48	.21	2.26	*
18	11.47	11.97	-.50	.21	2.35	**
20	12.91	12.17	.73	.21	3.42	**
24	3.58	3.37	.21	.07	2.93	**
25	57.38	51.19	6.18	1.16	5.31	**
26	20.48	21.93	-1.45	.50	2.88	**
27	42.43	44.64	-2.20	.47	4.68	**
28	9.97	14.35	-4.37	.47	9.14	**
29	79.30	80.41	-1.10	.18	5.92	**
30	54.31	53.64	.67	.33	1.99	*
31	70.35	75.47	-5.12	2.59	1.97	*
32	8.05	6.59	1.45	.16	8.97	**
33	-5.99	-8.17	2.18	.43	5.04	**
34	47.48	49.38	-1.90	.52	3.62	**
35	-6.72	-3.38	-3.33	1.64	2.03	*
37	-17.42	-13.36	-4.06	1.23	3.27	**
39	4751.20	5466.69	-715.49	331.20	2.16	*
40	-155.18	-276.85	121.66	41.01	2.96	**
42	23.20	31.45	-8.24	2.63	3.13	**
44	-.08	-1.79	1.71	.33	5.19	**
45	.40	-2.65	3.05	.33	8.99	**
46	.55	-2.31	2.87	.29	9.86	**
47	.32	-2.53	2.86	.34	8.26	**
48	-.29	-1.56	1.27	.35	3.55	**
49	-1.19	-2.45	1.25	.51	2.41	**

O-GO (N_1=748)
T-NG (N_2=2043)

c.v. of F at α = .01 = 1.94
c.v. of F at α = .001 = 2.30

Key to Symbols:

O-GO:	Initial program, Occupational; graduated in Occupational program
T-NG:	Initial program, Transfer; nongraduate
$\bar{X}_1$:	Mean for O-GO career pattern
$\bar{X}_2$:	Mean for T-NG career pattern
*:	F-value significant at .01 level
**:	F-value significant at .001 level

TABLE 61

Post Hoc Means Contrast (Scheffé Type Test)
between O-GO and T-GO Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
28	9.97	12.84	-2.86	1.45	1.96	*
45	.40	-2.39	2.79	1.03	2.69	**
46	.55	-1.95	2.50	.88	2.82	**
47	.32	-2.62	2.95	1.05	2.80	**

O-GO ($N_1 = 748$)
T-GO ($N_2 = 64$)

c.v. of F at $\alpha = .01 = 1.94$
c.v. of F at $\alpha = .001 = 2.30$

Key to Symbols

O-GO: Initial program, Occupational; graduated in Occupational program
T-GO: Initial program, Transfer; graduated in Occupational program
$\bar{X}_1$: Mean for O-GO career pattern
$\bar{X}_2$: Mean for T-GO career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 62

Post Hoc Means Contrast (Scheffe Type Test)
between O-GT and T-GT Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
20	12.73	12.08	.65	.32	2.01	*
21	12.03	12.96	-.92	.35	2.58	**
44	-.47	-1.57	1.10	.49	2.23	*
45	-.56	-2.54	1.97	.50	3.88	**
46	-.14	-2.21	2.07	.43	4.75	**
47	-.77	-2.73	1.96	.51	3.78	**

O-GT ($N_1 = 402$)
T-GT ($N_2 = 621$)

c.v. of F at $\alpha = .01 = 1.94$
c.v. of F at $\alpha = .001 = 2.30$

Key to Symbols:

O-GT: Initial program, Occupational; graduated in Transfer program
T-GT: Initial program, Transfer; graduated in Transfer program
$\bar{X}_1$: Mean for O-GT career pattern
$\bar{X}_2$: Mean for T-GT career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 63

Post Hoc Means Contrast (Scheffé Type Test) between O-GT and T-GO Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
46	-.14	-1.95	1.80	.91	1.97	*

O-GT (N_1 = 402)
T-GO (N_2 = 64)

c.v. of F at α = .01 = 1.94
c.v. of F at α = .001 = 2.30

Key to Symbols:

O-GT: Initial program, Occupational; graduated in Transfer program
T-GO: Initial program, Transfer; graduated in Occupational program
$\bar{X}_1$: Mean for O-GT career pattern
$\bar{X}_2$: Mean for T-GO career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 64

Post Hoc Means Contrast (Scheffé Type Test) between O-GT and T-NG Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
14	12.66	12.06	.60	.30	1.99	*
20	12.73	12.17	.56	.27	2.04	*
25	56.14	51.19	4.94	1.48	3.32	**
27	46.85	44.64	2.21	.60	3.67	**
28	12.82	14.35	-1.52	.61	2.50	**
31	64.53	75.47	-10.93	3.31	3.20	**
37	-17.38	-13.36	-4.01	1.58	2.53	**
38	-45.97	-39.84	-6.13	2.41	2.53	**
40	-125.11	-276.85	151.73	52.36	2.89	**
41	1942.24	2047.43	-105.18	43.07	2.44	**
42	19.37	31.45	-12.07	3.36	3.59	**
44	-.47	-1.79	1.32	.42	3.14	**
45	-.56	-2.65	2.09	.43	4.81	**
46	-.14	-2.31	2.17	.37	5.84	**
47	-.77	-2.53	1.76	.44	3.99	**
48	-.50	-1.56	1.06	.45	2.33	**

O-GT (N_1 = 402)
T-NG (N_2 = 2043)

c.v. of F at α = .01 = 1.94
c.v. of F at α = .001 = 2.30

Key to Symbols:

O-GT: Initial program, Occupational; graduated in Transfer program
T-NG: Initial program, Transfer; nongraduate
$\bar{X}_1$: Mean for O-GT career pattern
$\bar{X}_2$: Mean for T-NG career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 65

Post Hoc Means Contrast (Scheffé Type Test) between O-GO and O-NG Career Patterns

Var. No.	$\overline{X}_1$	$\overline{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
1	4.33	4.65	-.32	.16	1.95	*
2	56.19	54.34	1.85	.75	2.46	**
10	13.24	12.86	.38	.18	2.10	*
24	3.58	3.36	.22	.06	3.33	**
25	57.38	35.90	3.48	1.08	3.21	**
26	20.48	21.99	-1.51	.46	3.21	**
27	42.43	44.63	-2.19	.43	5.00	**
28	9.97	13.83	-3.85	.44	8.65	**
29	79.30	80.24	-.93	.17	5.35	**
32	8.05	6.71	1.33	.15	8.84	**
33	-5.99	-7.36	1.37	.40	3.41	**
34	47.48	49.67	-2.19	.48	4.49	**
37	-17.42	-14.77	-2.64	1.15	2.29	*

O-GO (N_1=748)
O-NG (N_2=4061)

c.v. of F at α = .01 = 1.94
c.v. of F at α = .001 = 2.30

Key to Symbols:

O-GO: Initial program, Occupational; graduated in Occupational program
O-NG: Initial program, Occupational; nongraduate
$\overline{X}_1$: Mean for O-GO career pattern
$\overline{X}_2$: Mean for O-NG career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

enjoyed by transfer (i.e., baccalaureate-type) programs even extends to those students who choose to forsake such curricular choices and who ultimately succeed in their new occupational program choices.

The means contrasts reported in Tables 66, 68, and 71 shed some light on factors associated with the career patterns of those subjects who show consistency of status as either occupational or transfer program students, but who change their specific fields of study within the occupational or transfer curriculum. A few, but not many, significant differences on the predictor variables appeared in all such contrasts examined. Most of the measures exhibiting high discriminating power were environment variables. However, scores on three personal trait variables (S1: Preference for an intellectual campus environment, academic self-confidence, and arithmetic reasoning) were significantly higher for a group of transfer program students who switched from one transfer-type major to another and subsequently graduated than for an initially undecided group who later moved unsuccessfully into transfer programs. (Table 71)

Although students initially enrolled in transfer programs may later occasionally switch to occupational programs, they tend to accord a higher prestige rank to their original programs when compared with students who shift from occupational to transfer programs. Table 72 discloses that the former group (Lowered Educational-Occupational Aspirations) exceed the latter group (Raised Educational-Occupational Aspirations) in mean scores on five of the Prestige Differentials. (NOTE: Negative scores on the PD indices are associated with higher prestige ranking of own program.) Other career pattern contrasts involving levels of aspiration show the apparent influence of a variety of envi-

TABLE 66

Post Hoc Means Contrast (Scheffé Type Test) between O_1-NGO_2 and U-GO Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
2	54.31	58.38	-4.06	1.77	2.29	*
27	44.14	41.54	2.60	1.14	2.27	*
28	13.01	9.28	3.72	1.08	3.44	**
29	80.20	79.16	1.04	.40	2.54	**
32	6.96	8.45	-1.48	.43	3.40	**

O_1-NGO_2 (N_1=1983)

U-GO (N_2=127)

c.v. of F at α = .01 = 1.94

c.v. of F at α = .001 = 2.30

Key to Symbols:

O_1-NGO_2: Initial program, Occupational; last program, different Occupational; nongraduate
U-GO: Initial program, Undecided; graduated in Occupational program
$\bar{X}_1$: Mean for O_1-NGO_2 career pattern
$\bar{X}_2$: Mean for U-GO career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 67

Post Hoc Means Contrast (Scheffé Type Test) between U-GO and U-NGO Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
2	58.38	53.86	4.52	1.96	2.29	*
28	9.28	12.46	-3.17	1.12	2.64	**
32	8.45	7.23	1.22	.48	2.51	**

U-GO (N_1=127)

U-NGO (N_2=407)

c.v. of F at α = .01 = 1.94

c.v. of F at α = .001 = 2.30

Key to Symbols:

U-GO: Initial program, Undecided; graduated in Occupational program
U-NGO: Initial program, Undecided; last program, Occupational; nongraduate
$\bar{X}_1$: Mean for U-GO career pattern
$\bar{X}_2$: Mean for U-NGO career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 68

Post Hoc Means Contrast (Scheffé Type Test) between T_1-GT_1 and T_1-NGT_2 Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
28	11.97	14.35	-2.38	.80	2.94	**
37	-19.49	-13.80	-5.68	2.23	2.54	*

T_1-GT_1 (N_1=218)

T_1NGT_2 (N_2=933)

c.v. of F at α = .01 = 2.29

c.v. of F at α = .001 = 2.79

Key to Symbols:

T_1-GT_1:	Initial program, Transfer; graduated in same Transfer program
T_1NGT_2:	Initial program, Transfer; last program, different Transfer; nongraduate
$\bar{X}_1$:	Mean for T_1-GT_1 career pattern
$\bar{X}_2$:	Mean for T_1-NGT_2 career pattern
*:	F-value significant at .01 level
**:	F-value significant at .001 level

TABLE 69

Post Hoc Means Contrast (Scheffé Type Test) between T_1-GT_1 and U-NGT Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
2	58.04	54.65	3.38	1.45	2.33	*
5	3.95	3.50	.45	.18	2.43	*
28	11.97	14.20	-2.22	.87	2.53	*
37	-19.49	-13.74	-5.75	2.42	2.37	*
45	-2.40	-.66	-1.74	.61	2.82	**
46	-2.17	-.49	-1.68	.44	3.80	**
47	-2.44	-.76	-1.68	.63	2.66	*

T_1-GT_1 (N_1=218)
U-NGT (N_2=479)

c.v. of F at α = .01 = 2.29
c.v. of F at α = .001 = 2.77

Key to Symbols:

T_1-GT_1: Initial program, Transfer; graduated in same Transfer program
U-NGT: Initial program, Undecided; last program, Transfer; nongraduate
$\bar{X}_1$: Mean for T_1-GT_1 career pattern
$\bar{X}_2$: Mean for U-NGT career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 70

Post Hoc Means Contrast (Scheffé Type Test) between T_1-NGT_1 and U-GT Career Patterns

Var. No.	X_1	X_2	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
45	-2.69	-.79	-1.90	.69	2.72	*
46	-2.24	-.42	-1.81	.50	3.63	**

T_1-NGT_1 (N_1=449)
U-GT (N_2=158)

c.v. of F at α = .01 = 2.29
c.v. of F at α = .001 = 2.77

Key to Symbols:

T_1-NGT_1: Initial program, Transfer; last program, same Transfer; nongraduate
U-GT : Initial program, Undecided; graduated in Transfer program
$\bar{X}_1$: Mean for T_1-NGT_1 career pattern
$\bar{X}_2$: Mean for U-GT career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 71

Post Hoc Means Contrast (Scheffé Type Test) between T_1-GT_2 and U-NGT Career Patterns

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
2	58.40	54.65	3.74	1.19	3.12	**
5	3.92	3.50	.42	.15	2.75	*
7	13.70	12.52	1.18	.46	2.55	*
24	3.63	3.33	.30	.11	2.55	*
45	-2.61	-.66	-1.94	.51	3.81	**
46	-2.24	-.49	-1.75	.36	4.79	**
47	-2.88	-.76	-2.12	.52	4.05	**

T_1-GT_2 ($N_1 = 403$)
U-NGT ($N_2 = 479$)

c.v. of F at $\alpha = .01 = 2.29$
c.v. of F at $\alpha = .001 = 2.77$

Key to Symbols:

T_1-GT_2: Initial program, Transfer; graduated in different Transfer program
U-NGT: Initial program, Undecided; last program, Transfer; nongraduate
$\bar{X}_1$: Mean for T_1-GT_2 career pattern
$\bar{X}_2$: Mean for U-NGT career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 72

Post Hoc Means Contrast (Scheffé Type Test) between R and L Educational-Occupational Aspirations

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
27	45.98	44.28	1.70	.60	2.82	**
44	-.46	-1.78	1.31	.40	3.27	**
45	-.43	-2.50	2.07	.42	4.93	**
46	-.23	-2.41	2.17	.36	5.92	**
47	-.59	-2.55	1.95	.43	4.50	**
48	-.45	-1.75	1.29	.45	2.85	**

R (N_1 = 1857)
L (N_2 = 434)

c.v. of F at α = .01 = 1.94
c.v. of F at α = .001 = 2.30

Key to Symbols:

R (Raised): Initial program, Occupational; last program, Transfer
L (Lowered): Initial program, Transfer; last program, Occupational
$\bar{X}_1$: Mean for R career pattern
$\bar{X}_2$: Mean for L career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 73

Post Hoc Means Contrast (Scheffé Type Test) between R and D-O Educational-Occupational Aspirations

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
5	3.63	3.38	.24	.11	2.04	*
27	45.98	42.85	3.13	.55	5.63	**
28	14.23	11.70	2.53	.55	4.55	**
29	80.31	79.73	.58	.22	2.62	**
32	6.63	7.52	-.88	.19	4.58	**
33	-7.60	-6.45	-1.14	.48	2.38	**
35	-1.03	-5.92	4.88	1.92	2.53	**
48	-.45	-1.44	.98	.41	2.36	**

R (N_1=1857) c.v. of F at α = .01 = 1.94

D-O (N_2=534) c.v. of F at α = .001 = 2.30

Key to Symbols:

R (Raised): Initial program, Occupational; last program, Transfer
D-O (Delay-O): Initial program, Undecided; last program, Occupational
$\bar{X}_1$: Mean for R career pattern
$\bar{X}_2$: Mean for D-O career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

ronmental conditions. (Table 73)

Tables 75 through 80 present findings on the relationships between predictor variables and selected pairs of career patterns which incorporate students' postcollege employment status as a criterion. The results contained in Table 76 are of close relevance to the central aims of the research project. This treatment contrasts the characteristics of a student group initially enrolled in occupational programs but later employed in fields unrelated to their college training with those of a second student group employed after college in fields related to the occupational programs in which they were originally enrolled. Those who were gainfully employed in work related to their entering occupational programs (O-REL) are shown to score significantly higher in Altruism (WVI) and Satisfaction with College (JCSI), and significantly lower in their prestige rankings of their initial curricular programs (PD 2, 3, & 4). One campus environment difference also appears relating to the Humanism scale on the Junior College Environment Scales. A similar comparison is presented in Table 79, but "Occupational" status for both student groups in this treatment refers to the last college program in which the students were known to be enrolled. Three of the measures (altruism, one prestige differential, humanistic campus environment) which yielded significant mean score differences in the previous analysis performed similarly in this case, the direction of the differences being the same. A second WVI scale, Independence, yielded a higher mean score for those who entered jobs unrelated to their last occupational program in college.

Students completing 2-year programs of all types were significantly differentiated from students failing to complete such programs by 17

TABLE 74

Post Hoc Means Contrast (Scheffé Type Test) between D-O and D-T Educational-Occupational Aspirations

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
27	42.85	45.21	2.35	.66	3.54	**
28	11.70	13.68	-1.97	.66	2.97	**
29	79.73	80.48	-.74	.26	2.80	**
32	7.52	6.60	.91	.23	3.97	**
33	-6.45	-7.95	1.49	.57	2.60	**

D-O (N_1 = 534)
D-T (N_2 = 637)

c.v. of F at α = .01 = 1.94
c.v. of F at α = .001 = 2.30

Key to Symbols:

D-O (Delay-O): Initial program, Undecided; last program, Occupational
D-T (Delay-T): Initial program, Undecided; last program, Transfer
$\bar{X}_1$: Mean for D-O career pattern
$\bar{X}_2$: Mean for D-T career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 75

Post Hoc Means Contrast (Scheffé Type Test) between U-OTHR and O-REL Career Patterns (Initial College Program)

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
18	12.01	10.98	1.02	.42	2.41	**
24	3.41	3.72	-.30	.15	1.98	*
28	13.05	10.89	2.16	.89	2.41	**
45	-.50	.82	-1.32	.68	1.94	*
46	-.43	.99	-1.43	.58	2.43	**
47	-.62	1.00	-1.62	.72	2.23	**

U-OTHR (N_1 = 495)
O-REL (N_2 = 224)

c.v. of F at α .01 = 1.85
c.v. of F at α .001 = 2.17

Key to Symbols:

U-OTHR: Initial program, Undecided; employed in field for which not college-trained and for which no training program was available in student's college
O-REL: Initial program, Occupational; employed in field related to student's curricular program in college
$\bar{X}_1$: Mean for U-OTHR career pattern
$\bar{X}_2$: Mean for O-REL career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 76

Post Hoc Means Contrast (Scheffé Type Test) between O-OTHR and O-REL Career Patterns (Initial College Program)

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
21	11.99	13.09	-1.09	.41	2.63	**
24	3.41	3.72	-.30	.13	2.29	**
28	13.02	10.89	2.13	.78	2.71	**
45	-.34	.82	-1.16	.59	1.94	*
46	-.12	.99	-1.12	.51	2.17	**
47	-.35	1.00	-1.35	.63	2.12	*

O-OTHR (N_1 = 1863)
O-REL (N_2 = 224)

c.v. of F at α = .01 = 1.85
c.v. of F at α = .001 = 2.17

Key to Symbols:

O-OTHR:	Initial program, Occupational; employed in field for which not college-trained and for which no training program was available in student's college
O-REL:	Initial program, Occupational; employed in field related to student's curricular program in college
$\bar{X}_1$:	Mean for O-OTHR career pattern
$\bar{X}_2$:	Mean for O-REL career pattern
*:	F-value significant at .01 level
**:	F-value significant at .001 level

TABLE 77

Post Hoc Means Contrast (Scheffé Type Test) between T-OTHR and O-REL Career Patterns (Initial College Program)

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
1	4.93	4.21	.71	.32	2.18	**
5	3.86	3.41	.44	.18	2.45	**
6	3.38	3.61	-.23	.11	2.01	*
18	11.92	10.98	.93	.38	2.43	**
28	13.61	10.89	2.72	.80	3.38	**
29	80.62	79.86	.76	.37	2.05	*
32	6.72	7.47	-.74	.33	2.21	**
33	-7.88	-6.37	-1.51	.73	2.06	*
44	-1.59	.23	-1.82	.58	3.10	**
45	-2.68	.82	-3.51	.61	5.73	**
46	-2.30	.99	-3.30	.52	6.25	**
47	-2.74	1.00	-3.74	.65	5.72	**
48	-1.42	.02	-1.44	.65	2.20	**
49	-2.35	-.02	-2.32	.94	2.45	**

T-OTHR (N_1=1314)

O-REL (N_2=224)

c.v. of F at α = .01 = 1.85

c.v. of F at α = .001 = 2.17

Key to Symbols:

T-OTHR:	Initial program, Transfer; employed in field for which not college-trained and for which no training program was available in student's college
O-REL:	Initial program, Occupational; employed in field related to student's curricular program in college
$\bar{X}_1$:	Mean for T-OTHR career pattern
$\bar{X}_2$:	Mean for O-REL career pattern
*:	F-value significant at .01 level
**:	F-value significant at .001 level

TABLE 78

Post Hoc Means Contrast (Scheffé Type Test) between U-OTHR and O-REL Career Patterns (Last College Program)

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
28	47.28	42.90	4.37	1.97	2.21	**
29	15.62	10.35	5.26	1.70	3.09	**
35	52.49	47.80	4.68	1.80	2.60	**

U-OTHR (N_1=50) c.v. of F at α = .01 = 1.85

O-REL (N_2=248) c.v. of F at α = .001 = 2.17

Key to Symbols:

U-OTHR: Last program, Undecided; employed in field for which not college-trained and for which no training program was available in student's college

O-REL: Last program, Occupational; employed in field related to student's curricular program in college

$\bar{X}_1$: Mean for U-OTHR career pattern

$\bar{X}_2$: Mean for O-REL career pattern

*: F-value significant at .01 level

**: F-value significant at .001 level

TABLE 79

Post Hoc Means Contrast (Scheffé Type Test) between O-OTHR and O-REL Career Patterns (Last College Program)

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
18	11.90	11.08	.81	.36	2.22	**
21	12.05	12.87	-.82	.41	2.00	*
28	12.19	10.35	1.83	.76	2.41	**
46	-.32	.80	-1.12	.53	2.11	*

O-OTHR (N_1=1302)
O-REL (N_2=248)

c.v. of F at α = .01 = 1.85
c.v. of F at α = .001 = 2.17

Key to Symbols:

O-OTHR:	Last program, Occupational; employed in field for which not college-trained and for which no training program was available in student's college
O-REL:	Last program, Occupational; employed in field related to student's curricular program in college
$\bar{X}_1$:	Mean for O-OTHR career pattern
$\bar{X}_2$:	Mean for O-REL career pattern
*:	F-value significant at .01 level
**:	F-value significant at .001 level

TABLE 80

Post Hoc Means Contrast (Scheffé Type Test) between T-OTHR and O-REL Career Patterns (Last College Program)

Var. No.	$\bar{X}_1$	$\bar{X}_2$	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
1	4.90	4.25	.65	.30	2.14	*
4	2.66	2.46	.20	.10	1.89	*
5	3.80	3.37	.42	.16	2.54	**
18	11.93	11.08	.85	.35	2.40	**
27	45.94	42.90	3.04	.85	3.56	**
28	13.78	10.35	3.42	.73	3.30	**
29	80.58	79.78	.80	.34	2.34	**
32	6.70	7.81	-1.11	.30	3.64	**
33	-7.76	-6.12	-1.63	.67	2.43	**
45	-1.59	.58	-2.18	.59	3.67	**
46	-1.31	.80	-2.11	.51	4.11	**
47	-1.69	.58	-2.27	.62	3.63	**

T-OTHR ($N_1 = 2320$)
O-REL ($N_2 = 248$)

c.v. of F at $\alpha = .01 = 1.85$
c.v. of F at $\alpha = .001 = 2.17$

Key to Symbols:

T-OTHR: Last program, Transfer; employed in field for which not college-trained and for which no training program was available in student's college
O-REL: Last program, Occupational; employed in field related to student's curricular program in college
$\bar{X}_1$: Mean for T-OTHR career pattern
$\bar{X}_2$: Mean for O-REL career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

TABLE 81

Post Hoc Means Contrast (Scheffé Type Test) between Groups Completing (COMP) and Not Completing (NONCOMP) 2-Year Degree Programs

Var. No.	X_1	X_2	$\hat{\psi}$	$\hat{\sigma}_{\hat{\psi}}$	$F_{\hat{\psi}}$	P
2	57.10	55.05	2.05	.271	7.56	**
5	3.76	3.52	.24	.035	6.97	**
6	3.46	3.38	.08	.022	3.72	*
7	13.60	12.88	.72	.098	7.40	**
10	13.16	12.89	.27	.065	4.16	*
21	12.50	12.16	.34	.081	4.23	*
23	1.95	1.92	.03	.009	3.77	*
24	3.58	3.36	.22	.025	8.84	**
25	56.23	53.04	3.19	.390	8.18	**
28	11.44	13.93	-2.48	-.164	15.16	**
29	80.00	80.25	-.25	-.065	3.86	*
32	7.33	6.76	.57	.056	10.19	**
33	-6.83	-7.52	.69	.144	4.81	**
34	47.82	49.57	-1.75	-.176	9.97	**
37	-17.51	-14.24	-3.27	-.412	7.94	**
40	-169.78	-226.06	56.28	13.569	4.14	*
42	22.65	27.43	-4.77	-.872	5.48	**

COMP (N_1 = 2144)
NONCOMP (N_2 = 6626)

c.v. of F at α = .01 = 3.70
c.v. of F at α = .001 = 4.77

Key to Symbols:

COMP: Completed a 2-year college degree program within two years of college entrance
NONCOMP: Failed to complete a 2-year college degree program within two years of college entrance
$\bar{X}_1$: Mean for COMP career pattern
$\bar{X}_2$: Mean for NONCOMP career pattern
*: F-value significant at .01 level
**: F-value significant at .001 level

of the measures. (Table 81) The successful group displayed higher mean scores on socioeconomic status, two academic self-confidence items, arithmetic reasoning, the achievement and altruism work values, pressure to raise educational aspiration level (Academic Change-Press), and stated satisfaction with college. Certain scales on the Junior College Environment Scales, Faculty Preference Scales, and Community Characteristics Index also provided significant mean score separation between the two criterion groups.

Summary of General Results of Post Hoc Means Contrasts

Taken as a whole, the series of post hoc means contrasts for which results are summarized in Tables 49 through 81 disclosed that a broad range of individual predictors were effective in discriminating between selected pairs of educational career pattern criterion groups. Since the Scheffé-type test had been applied to 39 pairs, the 33 contrasts for which at least one very significant variable was identified (.01 or .001 confidence level) represented a positive findings rate of 85 per cent. This figure is very likely an overestimate of the true "hit rate" since sampling fluctuations may well have yielded some false positives among the very large number of separate contrasts examined over the 39 treatments (N = 49x39 = 1911).

Results have not been tabled in this chapter for the six criterion group pairings for which independent variables with high discriminating power were not found. However, this group of nonsignificant pairings included several which are of considerable interest to those public junior and community college officials who are responsible for admissions policies, curriculum development, and counseling. Among those contrasts within which the series of predictor variables, examined one at a time, yielded no significant F-values were: (a) Students initially enrolled in transfer programs and ultimately completing transfer programs (T-GT) versus students initially enrolled in transfer programs but shifting to and completing occupational programs (T-GO); (b) Students initially enrolled in transfer programs and later shifting to and completing occupational programs (T-GO) versus students initially enrolled in transfer programs and later shifting to but failing to complete occupational programs (T-NGO); and (c) Students initially enrolled in specific types of transfer programs and later completing them (T_1-GT_1) vs. students initially enrolled in specific types of transfer programs but shifting to and successfully completing other specific types of transfer programs (T_1-GT_2).

Tallies of the individual F-values obtained on separate tests of the 49 predictor variables across the 33 means contrasts in Tables 49 through 81 produced a mean of 8.1 significant F-values per table. If the six contrasts which yielded no high discriminating variables are added in, the mean number of significant F-values per table becomes 6.9. The most widely effective discriminator was the E4: Humanism scale of the Junior College Environment Scales which produced significant F-values on 28 of the contrasts. Other highly functional discriminators, and the corresponding frequencies of their significant F-values, were: Prestige Differentials PD2 (14), PD3 (16), and PD4 (14); Community Characteristics Index C2: Higher Education (16) and C3: Job and Status Mobility (11); Faculty Preference Scale F1: Preferred Type of Student Body (15); Student Preference Scale S1:

Intellectual Environment (10); and two Junior College Student Inventory items, Likelihood of Success in B.A. Program (10) and Satisfaction with College (11). In general, environmental variables appeared to be more successful than psychosocial and personal trait variables in differentiating selected pairs of 2-year educational career patterns.

The least effective instrumnt among those employed in the predictor set was the Work Values Inventory for which the 15 scales yielded a total of only 25 significant F-values out of a possible 585 contrasts. The most active Work Values Inventory scales were Independence (six significant F-values) and Altruism (five significant F-values). Variables producing no significant separations between any of the paired criterion groups included Student Preference Scale S2: Sociability; Work Values Inventory scales for Creativity, Management, Way of Life, Prestige, Variety, and Intellectual Stimulation; and Community Characteristics Index C6: Industrial Unionization and C13: Urbanization.

Chi-Square Tests

In order to provide a second approach to the multivariate analysis of the criterion group data and to substantiate the findings obtained earlier from the stepwise multiple discriminant analysis procedure, the investigators applied Chi-square tests to ten sets of educational career patterns. In these sets, students were first categorized into various combinations of 2-year career patterns identical with those subjected earlier to the stepwise treatments in Tables 39A & B through 48A & B. (See p. 187) Next, the predicted (observed) cell frequencies were compared with the expected (chance) cell frequencies and the Chi-square values were computed.

In Table 82, the predicted and expected distributions of cell frequencies are compared for five educational career pattern groups, each of which consisted of students initially enrolled in occupational programs. The actual distribution of 5211 students within the five educational career patterns was known and appears as the first column of numbers in the table. As these figures show, 402 students began college in occupational programs but later completed transfer programs. Although the expected (chance) frequency for this cell was 85, the number predicted by the project data was 207. Conversely, the expected frequencies for the misplacement of O-GT students into the O-GO, O-NGT, O-NGO, and O-NGU cells were higher than the predicted frequencies. Moving down the table, one notes that the classification accuracy or "hit rate" on the remaining four educational career patterns was consistently higher for the predicted frequencies than for the expected (chance) frequencies. A Chi-square of 1386.9 with 16 degrees of freedom was obtained for the overall matrix. The probability that differences of this magnitude between the predicted and expected frequencies might have occurred by chance, assuming the true difference to be zero, was less than .01. The same general interpretive analysis may be applied to the Chi-square tables for the remaining nine sets of 2-year educational career patterns (Tables 83 through 91). In each instance, the disparity between the "hit rate" of the predicted frequencies and that of the expected frequencies produced a Chi-square value beyond the .01 confidence level.

TABLE 82

Chi-Square Test of Predicted Categories of Junior College Career Patterns*

(Students initially enrolled in Occupational programs)

Career Pattern	N	O-GT	O-GO	O-NGT	O-NGO	O-NGU
	Actual	Predicted				
O-GT						
Observed frequency	402	207	52	46	43	54
(Expected frequency)		(85)	(70)	(55)	(81)	(109)
O-GO						
Observed frequency	748	137	378	36	95	102
(Expected frequency)		(158)	(131)	(104)	(151)	(202)
O-NGT						
Observed frequency	1455	376	110	340	231	398
(Expected frequency)		(308)	(254)	(202)	(294)	(394)
O-NGO						
Observed frequency	2047	332	353	243	575	544
(Expected frequency)		(434)	(358)	(284)	(413)	(555)
O-NGU						
Observed frequency	559	54	20	60	109	316
(Expected frequency)		(118)	(97)	(77)	(112)	(151)

N = 5211 df = 16
χ^2 = 1386.9 $p < .01$

*This table presents the "hit" rates when categorizing into correct 2-year career (curriculum) patterns those students who were initially enrolled in Occupational programs.

Key for Career Pattern Codes

O-GT : Initial program, Occupational; graduated in Transfer program
O-GO : Initial program, Occupational; graduated in Occupational program
O-NGT: Initial program, Occupational; last program, Transfer; nongraduate
O-NGO: Initial program, Occupational; last program, Occupational; nongraduate
O-NGU: Initial program, Occupational; last program, Undecided; nongraduate

TABLE 83

Chi-Square Test of Predicted Categories of Junior College Career Patterns*
(Students initially enrolled in Transfer programs)

Career Pattern	N	T-GT	T-GO	T-NGT	T-NGO	T-NGU
	Actual	Predicted				
T-GT						
Observed frequency	621	256	149	79	54	83
(Expected frequency)		(151)	(118)	(152)	(64)	(133)
T-GO						
Observed frequency	64	11	37	8	6	2
(Expected frequency)		(15)	(12)	(15)	(6)	(13)
T-NGT						
Observed frequency	1382	309	231	459	121	262
(Expected frequency)		(336)	(264)	(338)	(144)	(297)
T-NGO						
Observed frequency	370	55	82	54	84	95
(Expected frequency)		(90)	(70)	(90)	(38)	(79)
T-NGU						
Observed frequency	291	34	23	68	20	146
(Expected frequency)		(70)	(55)	(71)	(30)	(62)

*This table presents the "hit" rates when categorizing into correct 2-year career (curriculum) patterns those students who were initially enrolled in Transfer programs.

N = 2728	df = 16
$\chi^2 = 498.2$	$p < .01$

Key for Career Pattern Codes

T-GT : Initial program, Transfer; graduated in Transfer program
T-GO : Initial program, Transfer; graduated in Occupational program
T-NGT: Initial program, Transfer; last program, Transfer; nongraduate
T-NGO: Initial program, Transfer; last program, Occupational; nongraduate
T-NGU: Initial program, Transfer; last program, Undecided; nongraduate

TABLE 84

Chi-Square Test of Predicted Categories of Junior College Career Patterns*
(Students initially Undecided about curricular programs)

Career Pattern	N	U-GT	U-GO	U-NGT	U-NGO	U-NGU
	Actual :	Predicted				
U-GT						
Observed frequency	158	89	3	20	16	30
(Expected frequency)		(41)	(17)	(25)	(35)	(38)
U-GO						
Observed frequency	127	31	59	9	18	10
(Expected frequency)		(33)	(13)	(20)	(28)	(30)
U-NGT						
Observed frequency	407	140	12	113	96	118
(Expected frequency)		(107)	(44)	(66)	(90)	(98)
U-NGO						
Observed frequency	479	76	66	57	132	76
(Expected frequency)		(126)	(51)	(78)	(106)	(115)
U-NGU						
Observed frequency	160	15	4	19	34	88
(Expected frequency)		(42)	(17)	(26)	(35)	(38)

*This table presents the "hit" rates when categorizing into correct 2-year career (curriculum) patterns those students who were initially enrolled in Undecided programs.

N = 1331 df = 16
$\chi^2 = 439.1$ $p < .01$

Key for Career Pattern Codes

U-GT : Initial program, Undecided; graduated in Transfer program
U-GO : Initial program, Undecided; graduated in Occupational program
U-NGT: Initial program, Undecided; last program, Transfer; nongraduate
U-NGO: Initial program, Undecided; last program, Occupational; nongraduate
U-NGU: Initial program, Undecided; last program, Undecided; nongraduate

TABLE 85

Chi-Square Test of Predicted Categories of Junior College Career Patterns *

(Groups initially enrolled in Occupational or Transfer programs)

Career Pattern	N	O-GO	O-GT	O-NG	T-GO	T-GT	T-NG
	Actual	Predicted					
O-GO							
Observed frequency	478	340	141	135	67	34	31
(Expected frequency)		(104)	(105)	(220)	(91)	(83)	(141)
O-GT							
Observed frequency	402	42	147	80	52	45	36
(Expected frequency)		(56)	(56)	(118)	(49)	(44)	(76)
O-NG							
Observed frequency	4061	620	564	1835	364	177	501
(Expected frequency)		(568)	(574)	(1196)	(498)	(451)	(770)
T-GO							
Observed frequency	64	5	10	7	26	8	8
(Expected frequency)		(8)	(9)	(18)	(7)	(7)	(12)
T-GT							
Observed frequency	621	23	87	31	124	232	124
(Expected frequency)		(86)	(87)	(182)	(76)	(69)	(117)
T-NG							
Observed frequency	2043	81	175	251	342	387	807
(Expected frequency)		(285)	(289)	(601)	(250)	(227)	(387)

$N = 7939$ $df = 25$

$\chi^2 = 3155.6$ $p < .01$

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*This table presents the "hit" rates when categorizing students correctly into six 2-year career (curriculum) patterns. Three student groups in this analysis were initially enrolled in Occupational programs. The remaining three groups were initially enrolled in Transfer programs.

Key for Career Pattern Codes

O-GO : Initial program, Occupational; graduated in Occupational program
O-GT : Initial program, Occupational; graduated in Transfer program
O-NG : Initial program, Occupational; nongraduate
T-GO : Initial program, Transfer; graduated in Occupational program
T-GT : Initial program, Transfer; graduated in Transfer program
T-NG : Initial program, Transfer; nongraduate

TABLE 86

Chi-Square Test of Predicted Categories of Junior College Career Patterns*

(Groups enrolled in Occupational programs last term in college)

Career Pattern	N	O_1-GO_1	O_1-GO_2	O_1-NGO_1	O_1-NGO_2	U-GO	U-NGO
	Actual:	Predicted					
O_1-GO_1							
Observed frequency	17	8	1	1	3	2	2
(Expected frequency)		(2)	(2)	(2)	(4)	(1)	(3)
O_1-GO_2							
Observed frequency	731	146	171	104	135	123	52
(Expected frequency)		(98)	(97)	(126)	(180)	(76)	(150)
O_1-NGO_1							
Observed frequency	64	5	4	29	8	8	10
(Expected frequency)		(8)	(8)	(11)	(15)	(6)	(13)
O_1-NGO_2							
Observed frequency	1983	207	234	364	586	133	459
(Expected frequency)		(268)	(265)	(343)	(489)	(207)	(409)
U-GO							
Observed frequency	127	32	15	15	17	34	14
(Expected frequency)		(17)	(17)	(21)	(31)	(13)	(26)
U-NGO							
Observed frequency	407	52	21	63	73	48	150
(Expected frequency)		(55)	(54)	(70)	(100)	(42)	(83)

*This table presents the "hit" rates when categorizing students correctly into six 2-year career (curriculum) patterns. Each group included only students who were in Occupational programs during their last term in college, but the six groups differed from one another in overall (2-year) career pattern.

N = 3329 df = 25
$\chi^2 = 452.8$ $p < .01$

Key for Career Pattern Codes

O_1-GO_1 : Initial prog., Occupational; graduated in same Occupational prog.
O_1-GO_2 : Initial prog., Occupational; graduated in different Occupational prog.
O_1-NGO_1: Initial prog., Occupational; last prog., same Occupational; nongrad.
O_1-NGO_2: Initial prog., Occupational; last prog., different Occupational; nongrad.
U-GO : Initial prog., Undecided; graduated in Occupational prog.
U-NGO : Initial prog., Undecided; last prog., Occupational; nongraduate

TABLE 87

Chi-Square Test of Predicted Categories of Junior College Career Patterns* (Groups enrolled in Transfer programs last term in college)

Career Pattern	N	T_1-GT_1	T_1GT_2	T_1-NGT_1	T_1-NGT_2	U-GT	U-NGT
	Actual	Predicted					
T_1-GT_1							
Observed frequency	218	69	56	19	37	20	17
(Expected frequency)		(34)	(34)	(23)	(51)	(30)	(43)
T_1-GT_2							
Observed frequency	403	90	123	29	70	52	39
(Expected frequency)		(63)	(64)	(42)	(94)	(56)	(80)
T_1-NGT_1							
Observed frequency	449	99	60	80	115	40	55
(Expected frequency)		(70)	(71)	(47)	(105)	(63)	(89)
T_1-NGT_2							
Observed frequency	933	109	156	127	351	72	118
(Expected frequency)		(147)	(148)	(98)	(219)	(131)	(186)
U-GT							
Observed frequency	158	18	11	9	10	71	39
(Expected frequency)		(24)	(25)	(16)	(37)	(22)	(31)
U-NGT							
Observed frequency	479	32	15	16	38	118	260
(Expected frequency)		(75)	(76)	(50)	(112)	(67)	(95)

*This table presents the "hit" rates when categorizing students correctly into six 2-year career (curriculum) patterns. Each group included only students who were in Transfer programs during their last term in college, but the six groups differed from one another in overall (2-year) career pattern.

N = 2640	df = 25
χ^2 = 985.5	$p < .01$

Key for Career Pattern Codes

T_1-GT_1 : Initial prog., Transfer; graduated in same Transfer prog.
T_1-GT_2 : Initial prog., Transfer; graduated in different Transfer prog.
T_1-NGT_1 : Initial prog., Transfer; last prog., same Transfer; nongrad.
T_1-NGT_2 : Initial prog., Transfer; last prog., different Transfer; nongrad.
U-GT : Initial prog., Undecided; graduated in Transfer prog.
U-NGT : Initial prog., Undecided; last prog., Transfer; nongraduate

TABLE 88

Chi-Square Test of Predicted Categories of Junior College Career Patterns*

(Students' change patterns related to educational-occupational aspiration level)

Career Pattern	N	R	L	S-O	S-T	D-O	D-T
	Actual:	Predicted					
R							
Observed frequency	1857	603	177	424	205	142	306
(Expected frequency)		(140)	(39)	(1529)	(46)	(32)	(68)
L							
Observed frequency	434	1	0	433	0	0	0
(Expected frequency)		(32)	(9)	(357)	(10)	(7)	(16)
S-O							
Observed frequency	2795	9	0	2786	0	0	0
(Expected frequency)		(211)	(59)	(2302)	(69)	(48)	(103)
S-T							
Observed frequency	2003	10	0	1993	0	0	0
(Expected frequency)		(151)	(42)	(1650)	(49)	(34)	(74)
D-O							
Observed frequency	534	0	0	534	0	0	0
(Expected frequency)		(40)	(11)	(439)	(13)	(9)	(19)
D-T							
Observed frequency	637	1	0	635	0	1	0
(Expected frequency)		(48)	(13)	(524)	(15)	(11)	(23)

$N = 8260$ df $= 25$

$\chi^2 = 5856.8$ $p < .01$

*This table presents the "hit" rates when categorizing students by change patterns related to educational-occupational aspiration level. What is being predicted here is stability-instability and direction (e.g., raised-lowered) of aspiration.

Key for Career Pattern Codes

(R) Raised : Initial program, Occupational; last program, Transfer
(L) Lowered : Initial program, Transfer; last program, Occupational
(S-O) Stable-O: Initial program, Occupational; last program, Occupational
(S-T) Stable-T: Initial program, Transfer; last program, Transfer
(D-O) Delay-O : Initial program, Undecided; last program, Occupational
(D-T) Delay-T : Initial program, Undecided; last program, Transfer

TABLE 89

Chi-Square Test of Predicted Categories of Junior College Career Patterns*

(Linkages between initial college program status and post-college employment status)

Career Pattern	N	U-AVL	U-OTHR	T-AVL	T-OTHR	O-AVL	O-OTHR	O-REL
	Actual	Predicted						
U-AVL								
Observed frequency	148	58	15	23	10	7	14	21
(Expected frequency)		(14)	(23)	(15)	(37)	(11)	(25)	(18)
U-OTHR								
Observed frequency	495	50	144	26	72	36	107	60
(Expected frequency)		(49)	(78)	(52)	(127)	(39)	(86)	(62)
T-AVL								
Observed frequency	162	8	12	77	47	5	9	4
(Expected frequency)		(16)	(25)	(17)	(41)	(12)	(28)	(20)
T-OTHR								
Observed frequency	1314	54	148	187	773	14	103	35
(Expected frequency)		(130)	(207)	(138)	(337)	(104)	(229)	(165)
O-AVL								
Observed frequency	481	63	41	64	34	103	72	104
(Expected frequency)		(47)	(76)	(50)	(123)	(38)	(83)	(60)
O-OTHR								
Observed frequency	1863	205	370	108	259	184	488	249
(Expected frequency)		(185)	(294)	(195)	(478)	(148)	(325)	(235)
O-REL								
Observed frequency	224	28	11	8	8	25	25	119
(Expected frequency)		(22)	(35)	(23)	(57)	(17)	(39)	(28)

(continued on following page)

Table 89 (continued)

*This table presents the "hit" rates when categorizing students correctly in terms of seven linkages between initial college program status and post-college employment status. Only subjects who left college and found employment were sampled.

$N = 4687$ $df = 36$
$\chi^2 = 2260.6$ $p < .01$

Key for Career Pattern Codes

U : Initial program, Undecided
T : Initial program, Transfer
O : Initial program, Occupational
AVL : Employed in field for which not college-trained but for which training program was available in student's college
OTHR: Employed in field for which not college-trained and for which no training program was available in student's college
REL : Employed in field related to student's curricular program in college

TABLE 90

Chi-Square Test of Predicted Categories
of Junior College Career Patterns
(Linkages between last college program status and post-college employment status)

Career Pattern	N	U-AVL	U-OTHR	T-AVL	T-OTHR	O-AVL	O-OTHR	O-REL
		Actual :			Predicted			
U-AVL								
Observed frequency	6	3	1	0	0	0	1	1
(Expected frequency)		-	-	-	(2)	-	(1)	-
U-OTHR								
Observed frequency	50	1	36	2	6	1	2	2
(Expected frequency)		(2)	(6)	(4)	(18)	(2)	(8)	(7)
T-AVL								
Observed frequency	274	21	25	102	73	15	19	19
(Expected frequency)		(11)	(35)	(25)	(99)	(14)	(47)	(40)
T-OTHR								
Observed frequency	2320	66	326	198	1202	96	289	143
(Expected frequency)		(98)	(300)	(217)	(839)	(121)	(403)	(339)
O-AVL								
Observed frequency	487	41	39	70	70	44	79	144
(Expected frequency)		(20)	(63)	(45)	(176)	(25)	(84)	(71)
O-OTHR								
Observed frequency	1302	48	164	50	315	76	394	255
(Expected frequency)		(55)	(168)	(121)	(471)	(68)	(226)	(190)
O-REL								
Observed frequency	248	18	16	17	30	14	32	121
(Expected frequency)		(10)	(32)	(23)	(89)	(13)	(43)	(36)

Table 90 (continued)

*This table presents the "hit" rates when categorizing students correctly in terms of seven linkages between last college program status and post-college employment status. Only subjects who left college and found employment were sampled.

$N = 4687$ $df = 36$
$\chi^2 = 1475.6$ $p < .01$

Key for Career Pattern Codes

U : Last program, Undecided
T : Last program, Transfer
O : Last program, Occupational
AVL : Employed in field for which not college-trained but for which training program was available in student's college
OTHR: Employed in field for which not college-trained and for which no training program was available in student's college
REL : Employed in field related to student's curricular program in college

TABLE 91

Chi-Square Test of Predicted Categories of Junior College Career Patterns*

(Degree completion vs. noncompletion categories)

2-year Degree Completed vs Noncompleted	N		COMP	NONCOMP
	Actual	:	Predicted	
COMP				
Observed frequency	2144	:	1424	720
(Expected frequency)		:	(915)	(1228)
		:		
NONCOMP				
Observed frequency	6626	:	2321	4305
(Expected frequency)		:	(2829)	(3796)
		:		

N = 8770 df = 1

$\chi^2 = 651$ $p < .01$

*This table presents the "hit" rate when dichotomizing students into 2-year college degree completion vs noncompletion categories on the basis of the best team of predictor variables.

Key for Category Codes

COMP	Completed a 2-year college degree program within two years of college entrance
NONCOMP	Failed to complete a 2-year college degree program within two years of college entrance

CHAPTER 7

Summary

The shifting social and economic climate surrounding higher education has in recent years, and especially since about 1960, brought a significant transformation in the character and mission of the American public junior college. Prominent among the changes which have been occurring have been the fading of the junior college's sole image as a feeder or preparatory vehicle for baccalaureate institutions and the adoption of a dual curriculum base which emphasizes both transfer-type and occupational programs. Other changes affecting the 2-year college include the emergence of statewide systems of administration; closer and more formal ties between curriculum development and educational services and local community priorities; the diversification of the student population base to include larger proportions of minorities, women, older individuals, and second careerists; and the expansion of career counseling and placement services.

The multifaceted role of contemporary public junior and community colleges which is now emerging places a high premium upon the aims of occupational education. Assessments of the past effectiveness of such training have, in general, shown it to be seriously deficient in (a) the number, quality, and community relevance of curriculum programs, and in acceptance by students and their parents; (b) the numbers of students who enroll in career-related programs;

(c) the percentages who actually complete such programs; and (d) the percentages of occupational program graduates who take postcollege employment in fields related to their training. Furthermore, the absence of a tradition of programmatic research and development in 2-year colleges has, until the last few years, hampered vigorous and systematic attacks upon these problems.

Finding from recent studies have strongly suggested that the "success" of college programs, including vocational-technical curricula, is significantly influenced by a complex of environmental conditions, such as the social, economic,cultural, and population characteristics of the community in which an institution is located, and by the prevailing values and convictions which typify the college itself and its faculty. Interactions between such variables (environmental press indicators), status-of-occupation measures, and student personal traits (including self perceptions) are hypothesized to be related in important ways to the curriculum program choices, 2-year educational career patterns, and programs successes and failures of public junior college students. This generalized hypothesis defined a central objective of the present research project.

Recapitulation

Twenty-four widely separated colleges were selected from a larger sample of 100 public junior colleges which had been used in a previous study of relationships between college environments and campus personnel and community characteristics. The subsample of 24 colleges, like the larger base sample, was representative of American public junior colleges on several characteristics, such as size, location, and types of programs offered. However, the subsample was drawn in such a way as to maximize variance on a number of occupational program variables; e.g., percentage of students enrolled in occupational programs, percentage of students completing occupational programs. A battery of tests, inventories, and rating scales was administered to 10,857 students in the 24 colleges. Complete and scorable records were available for 89 per cent of this tested group, and it was on the data furnished by this reduced sample (9610) that the analysis was performed.

The principal sources of student information consisted of an extensive personal data questionnaire constructed expressly for this research project (Junior College Student Inventory), an adapted version of the Student Preference Scales which formed Part 2 of the JCSI, three subtests of the General Aptitude Test Battery (also incorporated into the JCSI as Part 1, Section A), and a 15-scale inventory of preferred conditions and rewards of work (Work Values Inventory). The thematic organization of items in Part 1, Section B of the JCSI was structured in terms of the student's socioeconomic status (parental educational and occupational level), academic self-confidence, satisfaction with college, curricular program prestige perceptions, and social pressures on choice of program. Sources of information on environmental influences included a set of four Junior College Environment Scales, a pair of Faculty Preference Scales, and a series of 13 Community Characteristics Indices. The latter instruments were used not to describe students but rather the economic, social, cultural, and philosophical climates of the campus and community in which the student functioned. Finally, term-by-term records were provided by the participating colleges on each student's curricular program status and, ultimately, on his completion or noncompletion of program and his postcollege employment status.

A variety of statistical treatments were applied in order to study both the interactions among the personal, psychosocial, and environmental variables and their relationships to students' program choices, 2-year educational career patterns, success in program completion, and postcollege employment status. Included in the data description and analysis operations were the following:

(a) Correlational analysis of environmental variables (Junior College Environment Scales) in relation to a set of ten so-called intermediate criteria (academic self-confidence, satisfaction with college, and program prestige perceptions (Prestige Differentials). The chief objective of this analysis was to investigate previously established links between the above-names environmental factors and selected student attitudes and perceptions believed to be associated with subsequent occupational program success and failure.

(b) Regression analysis involving each of the Junior College Environment Scales in turn as a predictor, each in combination with other predictor variables, with the ten intermediate criteria serving as the dependent variables. Although the general aim of this series of analyses was similar to that noted in the first-listed operation above, more comprehensive regression models were utilized permitting the testing of an additional number of related hypotheses.

(c) Computation of means and standard deviations, separately by men and women students, on the full array of 49 personal, psychosocial, and environmental variables, including the ten measures employed as intermediate criteria in the Part 1 analysis. (See first-listed operation.)

(d) Computation of means and standard deviations, separately for transfer program, occupational program, and "undecided" student subsamples, on the socioeconomic status, anticipated income, academic self-confidence, and academic change-press variables.

(e) Generation of a 49x49 intercorrelation matrix for the entire set of predictor variables, based on the full data sets obtained for 5924 male students. A companion matrix, yielding closely similar findings, was constructed for the 3686 women students but is not reported in this document.

(f) Multiple discriminant analysis (biomedical stepwise method) to test the power of the full array of predictor variables, taken as a set, to differentiate several educational career patterns. The principal objective of this series of 33 multivariate analysis treatments was to identify those pre-existing environmental and personal-psychological variables which appear to shape (or at least to be associated with) the 2-year academic histories of public junior/community college students, including their success or failure in completing occupational programs and the kinship between their curricular programs and post-college employment status.

(g) Computation of means contrasts between 33 pairs of 2-year educational career patterns, each of which contrasts tested the separate discriminating power of the 49 individual predictor variables with respect to each pair of student criterion groups.

(h) Application of Chi-square tests to the ten sets of educational career patterns which were subjected earlier (See "f" operation above) to the stepwise multiple discriminant analysis procedure. The twofold purpose of this series of tests was to ascertain whether the predictor variables, taken as a team, could significantly differentiate between 2-year patterns within the preselected sets of student criterion groups and, coincidentally, to confirm the results obtained by the stepwise method.

Conclusions

1. Taken in combination, the four scales of the Junior College Environment Scales yielded significant multiple correlations ($< .001$) with eight of the intermediate criteria -- Likelihood of Success in College, Satisfaction with College, Academic Change-Press, and five program Prestige Differentials. The strength of each relationship, although significant, was weak. Thus, it is seen that the types of campus environment influences tapped by the JCES appear not to be closely related to students' academic perceptions of self and curricular programs as measured by the intermediate criteria.

2. The Junior College Environment Scales (JCES), when combined one at a time in a multiple regression model with the remaining predictor variables, yielded very significant and relatively high multiple correlations with the ten intermediate criteria. The strongest relationships were with the students' Judged Achievement (extent to which they felt they were achieving several commonly accepted educational goals) and with PD3 (students' prestige ranking of their own curricular programs in relation to those suggested by faculty or counselors).

3. Students who preferred an intellectual and scholarly institutional environment (Student Preference Scale, S1) tended to have con-

fidence in their ability to succeed academically, judged themselves as achieving their educational goals, and reported being satisfied with college and having received suggestions to raise their levels of educational aspiration. Similar findings were obtained for students' preferred work values. When the 15 Work Values Inventory scales were examined as a set in the presence of the Junior College Environment Scales and the other concomitant variables, they accounted for small but significant percentages of the variance on the Likelihood of (academic) Success, Judged Achievement, Satisfaction with College, and Change-Press intermediate criteria.

4. In the presence of other variables, students with greater ability in arithmetic reasoning (GATB: N) reported greater Likelihood of Success and a higher frequency of educational goal attainment (Judged Achievement) and they indicated being pressed by others to raise their academic aspirations (Change-Press). Socioeconomic status (parental educational and occupational levels) was shown to hold similar relationships with these criteria.

5. Both men and women students estimated the probability of success in their own 2-year programs as somewhat below average; the women students reported being somewhat less confident than the men about their prospects. Surprisingly, both groups expressed greater self-confidence in their ability to complete a B.A. degree program.

6. Students of both sexes failed to report strong pressure from parents, friends, faculty, and counselors to raise their academic aspiration levels. Coupled with this result is the finding that both men and women students, on the average, ranked their own college programs

higher in prestige than any of five other programs which they were asked to evaluate. Apart from a higher score for women students on the Work Values Inventory (WVI) Altruism scale, only very negligible differences appeared in the expressed work values of the two sexes.

7. Support was found for the belief that students in public junior colleges represent a socioeconomic cross-section of society at large. In general, students in this study had parents who were high school graduates but who had typically completed less than two years of college and who were employed in middle-status occupations.

8. Groups of students exhibiting different 2-year educational career histories were shown to be marked by significantly different constellations of attributes. Both environmental and personal-psychological variables contributed to the disparate constellations. Although many similarities in background and self-concept makeup were found in the criterion groups, each of the multiple discriminant analysis treatments yielded a series of variables capable of distinguishing at significant levels between the educational career patterns under study.

9. Student preference for an intellectual and scholarly campus environment, confidence in his/her own ability to succeed in a baccalaureate degree program, and score on an objective measure of arithmetic reasoning abilty were all among the most potent indicators (in the interactive presence of other predictor variables) in separating discrepant 2-year educational career patterns. Most prominent as criterion group discriminators among the environmental variables were two parts of the Junior College Environment Scales which measure the collegiate

climate's emphasis upon intellectual maturity and responsibility and upon humanistic values.

10. Student preferences among a presenting set of work values, although related significantly to certain intermediate criteria in the presence of the other variables (See third-listed conclusion above), did not contribute to the differentiation of 2-year career patterns. Similarly, the press which students reported receiving from others to change their academic aspiration level failed to separate the criterion groups in the presence of other environmental and personal-psychological variables.

11.Environmental conditions, including certain demographic characteristics of the community in which a college is located, were effective in their interaction with other measures in differentiating several criterion groups whose members had all initially enrolled in transfer programs but had subsequently displayed divergent academic program histories. While the discovered relationship is one of concomitance only, it may be tentatively suggested that environmental press conditions influence the shape of the 2-year career patterns of students who are initially transfer bound.

12. The marked relationship of environmental factors to program mobility was again shown for the students who had entered college undecided about their fields of study. Environmental variables contributed importantly, through interaction with other measures, to the differentiation of the five "undecided" criterion groups. Since a substantially greater number of undecided students later shifted to transfer programs than switched to occupational programs, we may hypothesize

that some of these environmental conditions furnish a climate favorable to raising educational aspirations. Relevant to this matter are the findings comparing students who moved from occupational to transfer programs with those shifting programs in the opposite direction. More than four times as many students fell in the former category; i.e., raised their educational aspiration through curricular program shift. This rate is somewhat deceptive, however, since the number of students initially in occupational programs in this sampling was about 90 per cent greater than the number originally entering transfer programs.

13. "Successful" occupational program students (those initially entering and later completing occupational programs) scored significantly higher than "unsuccessful" occupational program students in arithmetic reasoning, preference for an intellectual emphasis in the collegiate environment, preference for achievement as a work value, and satisfaction with college. The "successful" students were also more likely to have attended a junior college located in a community with a high percentage of college-trained residents.

14. The influence of environmental conditions on educational career patterns is strongly suggested by the contrast between students beginning and completing occupational programs and those starting in occupational programs but shifting to and completing transfer programs. Those completing transfer programs were more likely to be enrolled in colleges emphasizing intellectual independence and maturity and humanism as institutional values. Their colleges were likely to be located in areas with larger percentages of college-educated residents.

15. In disagreement with certain other published studies which show

few if any differences in the makeups of occupational versus transfer students, the present study identified a sizable number of significant differences. When students initially enrolled in and later successfully completing transfer programs were compared with students initially enrolled in and later completing occupational programs, the transfer students were found more likely to have come from families and communities of higher socioeconomic status, to have attended colleges stressing intellectual values, to have expressed greater preference for an intellectually oriented campus environment, to have placed greater importance on altruism as a condition of satisfying work, and to have accorded greater prestige to their own curricular program than to a number of comparison programs. The transfer students, in addition, tended to claim greater confidence in their likelihood of completing a baccalaureate degree. The successful occupational program students, on the other hand, attached greater importance to security and economic returns as work values.

16. Important and significant differences were discovered between students initially enrolled in occupational programs whose post-college employment was related to their college training and occupational program students who later entered unrelated fields of work. The former group had early expressed greater satisfaction with college, had assigned greater importance to altruism as a work value, had ranked their own curricular program lower in prestige, and were more likely to have attended junior colleges emphasizing cultural and humanistic experiences.

17. Students completing any 2-year college program within two years of the time of enrollment significantly exceeded students who failed to complete programs in socioeconomic status, academic self-confidence, arithmetic reasoning ability, academic change-press, and in their stated satisfaction with college and the importance they attached to the work values of achievement and altruism. They were also more likely to have attended colleges which emphasized conventional conformity and adherence to accepted group standards.

18. The 2-year educational career patterns of the students in this investigation were generally unstable. The instability was manifested by numerous changes in program objectives, a marked average increase in level of educational aspiration, and the substantial numbers of students who failed to complete programs within the normally established time period.

Implications

In the execution of this research project and in the examination of its outcomes, the investigators have encountered a number of high-priority issues, many of long standing and all of them awaiting resolution, which stand as challenges to the functional effectiveness and future status of American public junior and community colleges. Although it was not the central concern of the study to deal directly with each of these insistent problems of educational policy, research, and practice, their timeliness seems beyond dispute. They are presented here as general implications of the project findings.

1. Research on the junior/community college curriculum and student population is rendered difficult by the absence of unambiguous

rules of definition for the identification of occupational and transfer program students. In the conventional baccalaureate institution, students are usually screened for admission to particular curricula according to a specified set of qualifications and with the understanding that prescribed course sequences will be followed. Thus, bachelor's program students, including in many instances those still registered in the lower division (first two years) of 4-year fields of study, are able to designate their academic programs with reasonable accuracy (although, admittedly, such program choices are frequently tentative and vulnerable to change). By contrast, the relative informality and flexibility of curriculum assignments in the 2-year college, as well as the often loosely structured course sequences by which such curricula are distinguished, make the program locus of many students troublesome for the research worker to discern. The difficulty is compounded by the students' proclivity for naming specific programs in order to satisfy inquirers, programs to which they may, in many cases, lack a reasoned and firm commitment. This condition doubtless contributes to the high incidence of curriculum preference instability found in this study and elsewhere for 2-year students. It should be stated that the move to reduce curriculum choice ambiguity is not dictated so much by the search for a more trustworthy information base for research as by the need for faculty and administrative officers and, above all, for students to have a clearer sense of program requirements and direction for purposes of realistic educational-vocational planning.

2. Do measurable differences exist between occupational program and transfer program students? While institutional policies would be well served by an unequivocally affirmative answer to this query, the

conventional wisdom that holds such differences to be real is challenged by the essentially negligible findings reported in Chapter 2 of this document and by the published studies of Munday (1968), Brue (1969), and others. In this present study, however, some substantial differences between occupational and transfer students are revealed. The disparity in findings may be in part attributable to the problem discussed above with respect to the difficulty of making reliable program identifications. A second explanation for the discrepant conclusions very likely rests in the methods used in the present study to classify criterion groups. These methods represent a departure from those commonly used in junior/community college student personnel research. As described in the Part II Findings (Chapter 6), the investigators adopted a series of longitudinal or 2-year educational career pattern definitions of college programs. Thus, for example, instead of comparing so-called "occupational" and "transfer" students at a single career point, the study compared such 2-year histories as that of students initially enrolled in and later completing occupational programs with that of students initially enrolled in and later completing transfer programs. The statistically significant results yielded by this approach suggests its potential fruitfulness for use in future junior/community college research.

3. The power of both community and campus-related environmental characteristics to differentiate diverse pairings and combinations of the student criterion groups, as demonstrated by this study, strongly suggests the importance both of community demographic and of college press variables in shaping 2-year educational career patterns. While

the work of Stern (1960), Thistlethwaite (1960), Pace (1964), and Astin (1968) on the measurement and educational significance of college environments is fairly well known, the fuller application of their techniques to the study of achieving behavior among junior/community college students seems clearly warranted. Two-year colleges which worry about students who do not choose available occupational programs, or who desert them in favor of transfer programs, should seriously consider undertaking institutional self-studies to learn whether they may unwittingly be furnishing a learning climate which denigrates occupational training and which operates as a sometimes perverse change-press phenomenon.

4. The open-door admissions policy of the public junior/community colleges has justly earned for them the reputation as the "opportunity colleges" within higher education. Without them, the right to collegiate training would be denied to large numbers of upwardly aspiring individuals. At the same time, relaxed admissions standards produce an increase in the percentage of academically high-risk students. Given the presence of these potential dropouts and failures, colleges must either protect themselves and the students by resorting to the questionable expedient of "grade inflation" or they must learn to provide specially designed curricula, ready-access counseling, remedial programs, and individual tutoring. The implications for student personnel work, and for programs of academic skills counseling in particular, are obvious. In the long haul, the success of such services may well rest on the establishment of improved systems of student personnel research.

5. The mounting costs of higher education, doubts about its social and economic consequences, and the resulting insistence upon ex-

ternal criteria of accountability have compelled the 2-year colleges to reexamine their curricula and to introduce more offerings of a functional nature. Curriculum development which isolates itself from the community is no longer acceptable. Consultation with civic and industrial representatives and the projection of community occupational surveys are indicated as indispensable steps in the identification and development of new programs. Moreover, the necessity is now seen for fusing more conventional classroom practices with "college without walls" techniques and resources like field experience, internship, appropriate academic credit for previous relevant work experience, and other forms of experiential learning. Further, the expansion of employment opportunities in the human services, law enforcement, and kindred fields points up the need for more systematic experimentation and follow-up studies with new-type training programs for paraprofessionals. Counseling-related activies designed to facilitate psychological aspects of the career development of students is also indicated. It may be hoped that the national emphasis on integral, school-wide career education, initiated by the U.S. Office of Education in 1971, will be more fully explored by postsecondary institutions. Finally, the pronounced trend toward the expansion of occupational curricula in the junior/community colleges must lead inevitably to an increased emphasis on the career guidance components of student counseling.

6. This study, like a number of others, has found that exposure to college tends to further elevate the educational aspirations of students. One result is that many more students who enter 2-year colleges change from occupational to transfer programs than the reverse, this despite the sharply increased emphasis on occupational training

noted above. There is yet little hard evidence to show that the provision of more career training opportunities in the junior/community colleges has materially slowed the rate of applications for transfer into baccalaureate programs from 2-year students. Can and will the 4-year colleges and, later, the graduate schools, accept them? Assuming they do and that the upwardly aspiring transfer-in students succeed, will the economy be able to absorb them, and the native baccalaureate student as well, into the high status professional and managerial occupations which are their goals? Here, again, the vexing question of accountability confronts the colleges.

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> An investigation of the causes and correlates of student attrition in higher education, particularly in two-year colleges. Offers a theoretical model of the attrition phenomonon and categorizes determinants into genetic, internal (psychological), and external (environmental) factors. Reports the methods and results of a detailed study of academic non-persistence within the Metropolitan Junior College District of Kansas City, Missouri. Presents a 17-characteristic profile of the typical non-persisting two-year college student who is described as more likely to be a freshman, female, younger (19-20), attending college on a part-time basis, living away from the family residence, holding financial independence of parents, working 25 hours per week or more, and possessing ambiguous degree plans and reasons for selecting a two-year college.

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*These additional publications, dating mostly from 1971 and beyond, include annotations. The reader may wish to consult selective references in this list in the interest of a more comprehensive coverage of the background literature on the general theme of the project.

Astin, A. W. Two approaches to measuring students' perceptions of their college environment. *Journal of College Student Personnel*, 1971, 12, 169-172.

> A study involving fifty-nine institutions of the relationship between the eight image factors of the Inventory of College Activities and the five scales of the College and University Environment Scale, suggests that the measurement of environmental press and college environmental characteristics could be made more efficient by utilizing factorially derived scales based on small numbers of items.

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Borow, H. Psychological factors in the college and career decisions of American community college students. In *Proceedings of the Fifth World Congress (1973) of the International Association for Educational and Vocational Guidance*. Quebec, Canada: The Association, 1974, pp. 269-284.

> A progress report, delivered at an international conference, on selected characteristics of the community college students sampled in this present study. Also presents a brief review of the literature on scholastic abilities, reasons for college choice, work values, and transfer-bound vs. occupational program student contrasts among two-year college enrollees.

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Borow, H. and Hendrix, V. L. Demographic and environmental factors related to successful occupational program completion in public community junior colleges: A population profile. Paper presented at annual convention of American Educational Research Association, Chicago, April 5, 1972.

> An interim report, presented at a national research conference, on the empirical background and descriptor variables which formed the basis of this present study (Project No. 5-0120, Grant No. OEG-0-9--330120-1369-085).

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Bushnell, D. S. *Organizing for change: new priorities for community colleges*. New York: McGraw-Hill, 1973.

> One of the three major reports growing out of Project Focus, a comprehensive study of the community college funded by the W. K. Kellogg Foundation. Presents student and faculty characteristics, institutional goals, educational change strategies, and shifting circumstances shaping the future of the community college. The summary notes six significant developments, indluding the emerging need to strengthen the articulation of occupational and transfer curricula. Incorporation in the appendix of the set of detailed questionnaires used to collect the project data lends a valuable feature to this publication.

Carmody, J. F., Fenske, R. H., and Scott, C. S. Change in goals, plans, and background characteristics of college-bound high school students. ACT Research Reports. Iowa City: American College Testing Program, 1972, 52.

Presents data on the stability of academic and vocational goals, educational aspirations and expections, employment experiences during college, and other variables, drawn from three follow-up studies of high school seniors. The changes in the above characteristics over two-year and four-year periods, while substantial, were judged "to be orderly and according to logical expectations." A commonly reported research finding to the effect that educational aspirations are raised by the junior college experience is supported by the results derived from the two-year sample investigated in this study.

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Cooley, W. W. and Lohnes, P. R. Multivariate data analysis. New York: Wiley, 1962.

Sets out methods for the simultaneous statistical analysis of a complex array of behavioral and environmental variables, such as those encountered in our present study of public junior college students. (Project No. 5-0120, Grant No. OEG-0-9-330120-1369-085).

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Cross, K. P. Beyond the open door. San Francisco: Jossey-Bass, 1971.

Examines the challenge attendant upon designing appropriate post-secondary educational experiences for nontraditional students and those subpopulations who have been previously underrepresented among the ranks of college goers. Traces the changing philosophies of higher education, provides a research description of "new" students, as contrasted with more tradtional students, in terms of the former's educational and occupational aspirations, attitudes, values, and personality characteristics. Presents follow-up data from a national sample of high school graduates and discusses the educational characteristics and needs of the women and ethnic minorities among the new students who rank below average in academic ability tests. The author calls for "broadening of the choice of subjects" and of education and career outcomes for nontraditional students, but she insists that, while they should be certified in a wide variety of areas of achievement, "there must be no compromise on quality of performance."

Daugherty, R., Korb, G. W., and Smiley, J. (Eds.) The expanding world of occupational education. *Proceedings of the National Seminar for State Directors of Community-Junior Colleges*. Columbus: Center for Vocational and Technical Education, January, 1972.

An omnibus report incorporating the major presentations and recommendations made at The Ohio State University seminar. The seminar was designed to familiarize state-level personnel in community-junior college administration and kindred positions with trends in post-secondary occupational education. One major section of the report relates the emerging principles of career education to the community-junior colleges and delineates the school-based comprehensive career education model in the development of which the Center for Vocational and Technical Education has played a central research role.

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Dixon, W. J. (Ed.) *Biomedical computer programs*. University of California Publications in Automatic Computation, No. 2. Berkeley and Los Angeles: University of California Press, 1967.

Presents the formulas and computer programs for the stepwise multiple discriminant analysis procedures which were used to generate the statistical findings reported in our present study of public junior college students. (Refer to chapters five and six of this document.

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Fibel, L. R. *Review and synthesis of literature on occupational preparation in the community college*. Columbus, Ohio: ERIC Clearinghouse on Vocational and Technical Education, The Ohio State University, 1972.

A broad-ranging review of the literature in which "the role of community colleges in occupational education is examined both in terms of method of operation and extent of offerings." The several chapters summarize requirements and student characteristics in community college occupational programs; descriptions of established and emerging occupational curricula; instructional standards, methods, resources, and program accreditation; and results of evaluation and follow-up studies. Among the author's recommendations are (a) a call for the publication and analysis of instruments used in making occupational surveys as a basis for initiating new occupational curricula, and (b) earmarking a three per cent allocation from community college occupational education budgets for the support of systematic research.

Garbin, A. P. and Vaughan, D. *Community-junior college students enrolled in occupational programs: selected characteristics, experiences, and perceptions*. Columbus, Ohio: Center for Vocational and Technical Education, The Ohio State University, 1971.

Reports the results of a national survey on the experiential and psychological makeup of community-junior college students in occupational programs. The findings, based on questionnaire returns from sixty institutions, focuses on demographic characteristics, social-psychological traits such as self-esteem, educational and socioeconomic background variables, educational and vocational aspirations and decisions, and work experience.

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Gleazer, E. J. *This is the community college*. Boston: Houghton Mifflin, 1968.

A comprehensive description of the community college by the Education Director of the American Association of Community and Junior Colleges. Chapter themes deal with the social and economic context of community-based higher education; an overview of the community college movement; the goals of the 2-year community college; meeting the needs of the nontransfer-bound student; the community college as a local cultural resource and center for continuing education; staff considerations -- preparation and selection of faculty, occupational competence, institutional participation and professional affiliations of faculty; and future developments as concerns financial resources, diversification of curricula ahd tuition policy.

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Gleazer, E. J. *Project Focus: A forecast study of community colleges*. New York: McGraw-Hill, 1973.

A companion report to that of Bushnell (as listed and annotated above) in which the author presents findings and impressions from on-site observations and interviews at widely dispersed community colleges.

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Hendrix, V. L. and Borow, H. Environmental and demographic factors related to successful occupational program completion in public community junior colleges: A discriminant analysis. Paper presented at annual convention of American Educational Research Association, Chicago, April 5, 1972.

An interim report, presented at a national research conference, on the interrelation of a variety of college environment variables, student background variables, and the choice and completion of occupational programs in public community-junior colleges. This paper is the companion piece to Borow-Hendrix (1972) report which is listed and annotated above. Both presentations drew upon the sampling, instruments, and findings which are reported in detail in this present final project report (Project No. 5-0120, Grant No. OEC-0-9-330120-1369-085).

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Mayhew, L. B. Higher education for occupations. Atlanta: Southern Regional Educational Board, 1974, Research Monograph No. 20.

A critical analysis of undergraduate occupational curricula. The author discusses vocationalism within the context of higher education, prevailing curriculum practices, emerging developments, and criteria and guidelines for college-level occupational education. The author indicts career preparation in higher education as "a display of traditional practice accompanied by much theorizing and exhortation..." The lack of boldness, strength, and innovativeness is attributable in part, according to the author, to a lack of firm conviction by collegiate authorities about the place of occupational training in higher education.

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McMahon, W. W. and Wagner, A. P. A study of the college investment decision. ACT Research Reports. Iowa City: American College Testing Program, 1973, 59.

An initial report on the College Investment Decision Study, presenting findings on the 2,693 students and their families drawn from a survey questionnaire and the Family Financial Statement. Copies of both survey instruments are reproduced in the appendixes. "The purposes of this report are to provide financial aid administrators and other interested researchers with an overview and the rationale of the College Investment Decison Study...."

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Medsker, L. L. and Tillery, H. D. Breaking the access barrier: A profile of two-year colleges. New York: McGraw-Hill, 1971.

Traces and evaluates the 2-year college and compares characteristics of 2-year vs. 4-year colleges. Espouses a diversified set of community services, including career education, guidance, developmental education, general education, and counseling. The summary chapter sets forth a set of recommendations for public community colleges. According to the Preface, the authors believe "that local financial support must be supplemented increasingly by the states and the federal government. At the same time, the colleges must be left operationally free to experiment and innovate as their roles and the changing times require."

Monroe, C. R. *Profile of the community college*. San Francisco: Jossey-Bass, 1972.

A view of the community college by a veteran administrator in the Chicago City Colleges. Contains chapters on student characteristics, personnel services, faculty, instruction, administration, governance, and individual rights.

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Nicholson, E. *Predictors of graduation from college*. ACT *Research Reports*. Iowa City: American College Testing Program, 1973, 56.

A comparative study of academic and nonacademic variables in three college student groups with different levels of attainment -- graduation with honors, graduation without honors, and dropout. The academic variables discriminated between honor graduates and non-honor graduates. Motivation and personal background variables discriminated between non-honor graduates and dropouts. A socioeconomic scale, called the Environmental Index, incorporates items of background information which appear to be related to completion vs. noncompletion of college.

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Prediger, D. J., Roth, J. D., and Noeth, R. J. Nationwide study of student career development: Summary of results. *ACT Research Reports*. Iowa City: American College Testing Program, 1973, 61.

Selective report on the outcomes of a national study using approximately 32,000 eighth, ninth, and eleventh grade students in two hundred schools. "A major finding is the sharp contrast between need for help with career planning and the help students have been receiving. In general, study results support the current emphasis on career guidance and career education."

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Rever, P. R. (Ed.) *Open admissions and equal access*. Iowa City: American College Testing Program, 1971, Monograph Four.

A compilation of conference papers on the college-going decision and open admissions. Papers by Peter Schrag, Theodore Newcomb, and Edmund Gordon raise serious philosophical and pragmatic questions concerning the role and function of open admissions collegiate programs. The final paper by Leo Munday and Philip Rever, written expressly for this monograph, draws on findings from the published literature to place the issues of open admissions in empirical perspective.

Richards, J. M. and others. The two-year college and its students: An empirical report. Iowa City: American College Testing Program, 1969, Monograph Two.

> A compilation of selected reports previously published as separate studies in the Research Reports series of the American College Testing Program. The original studies, which were prepared by ACT's Research and Development Division, "focus on institutional characteristics, student characteristics, and prediction; these (topics) form the organization for this monograph. The introduction to each section summarizes the articles in a non-technical fashion, relates them to one another, and considers some of their educational implications."

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Scott, C. S., Fenske, R. H., and Maxey, E. J. Vocational choice change patterns of a national sample of community-junior college students. ACT Research Reports. Iowa City: American College Testing Program, 1974, 64.

> "This study examines changes in expressed vocational choices made over an 18-month period by a sample of students who were each enrolled in one of 62 2-year institutions. Ability, interest, and family background measures were used as independent variables. Results indicated (a) that vocational choice changers were very similar to nonchangers in terms of the 23 independent variables examined; (b) that vocatinnal choice change patterns varied widely among groups of changers; and (c) that there were very substantial differences in the choice changes made by males and females. Theoretical and practical implications of the findings are discussed."

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Stewart, L. H. Interests of junior college students in occupationally oriented curricula. Vocational Guidance Quarterly, 1971, 19, 165-170.

> "The purpose of this study (was) to determine whether systematic differences exist in the interest scores of junior college students enrolled in occupation-centered curricula (i.e., educational programs leading to employment at the trade and technical levels). Reports, in part, an extension of the pilot project to cover practically all the occupation-centered curricula in junior colleges throughout California...Graduates of occupation-centered curricula who actually enter occupations appropriate to their course of study had interests quite similar to those of the currently enrolled students. Thus it would appear that the obtained curriculum clusters along with their respective profiles of means will provide useful reference points from which to consider educational and vocational decisions relative to the trade and technical fields."

Trent, J.W. and Medsker, L.L. Beyond high school. San Francisco: Jossey-Bass, 1969.

> A longitudinal study of high school graduates reporting their post-secondary educational career pattern, factors related to persistence in college, patterns of employment, and values and attitudes four years after high school. According to E. J. Shoben's Foreword, the findings of the study "make it quite clear that the potency of any given institution cannot be effectively assessed apart from the kinds of students in relation to whom its power is genuinely functional."

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Hendrix, Vernon L. Functional relationships of junior college environments and selected characteristics of faculties, students, the Administration and the community. Appendix A, Project No. 5-0770, Contract No. OE-6-10-262.

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*This special bibliography incorporates the references contained in the original proposal for this research project as submitted to the U.S. Office of Education. The references in this list were instrumental in the design of that phase of the study, including instrument selection, dealing with the prediction of intermediate criteria from environmental (community, campus, and socioeconomic) press variables. Refer to Chapter 4 of this report for a description of the press variables employed and to Chapter 5 for the findings.

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Pace, C. Robert, The influence of academic and student subcultures in college and university environments. (Final Report of Cooperative Research Project No. 1083) Los Angeles: University of California, 1964.

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APPENDIX A

JUNIOR
COLLEGE
STUDENT
INVENTORY

Vernon L. Hendrix

University of Minnesota

1966

Form O-L

Please turn to the next page and read the general instructions.

Introduction

The research project, of which this is a part, is being conducted by the University of Minnesota in twenty-four colleges located in various states. The general purpose of the project is to provide data which will permit better planning and operation of public junior colleges in the United States. The time you devote will help make this goal possible. Your name will be used only to gather information from your college records to supplement the research data collected in the test, thus making it unnecessary for you to give information already available. *No one at your college will see your answers to this instrument*. Only the computer at the University will "see" the information. It will replace your name with a code number thereby *quaranteeing completely anonymous treatment of all data*. *Neither this instrument nor your responses to it will have anything to do with your classes, grades, future enrollments (at this or other colleges) or employment*.

Nature of the tests

Section A of this booklet is composed of tests developed by the U.S. Department of Labor. The University of Minnesota has been granted special permission for their reproduction and use in this research project. *Tests in Section A may not be reproduced or used for any other purpose without written permission from the U.S. Department of Labor*.

Section B of this booklet has two parts. The first part asks you to compare yourself with other students and indicate some information about your program of study. The second part asks you to state your preferences about the atmosphere of a college.

Answer sheet

You must be careful to fill out the answer sheet correctly. To do so be sure your answer is in the right place by double checking the section, part, and item number. An ordinary pencil should be used; *do not use a ball point pen*. Make clear marks that completely blacken each answer space making sure that no marks are made on the answer sheet other than those you are asked to make. If you must make erasures, make certain you erase the undesired mark completely. DO NOT WRITE IN THE TEST BOOKLET.

JUNIOR COLLEGE STUDENT INVENTORY

SECTION A

NOTE: Section A of the Junior College Student Inventory consists wholly of selected tests from the General Aptitude Test Battery (GATB). Although written permission was obtained from the U.S. Department of Labor to reproduce the GATB tests in the Junior College Student Inventory booklets for purposes of the student testing and data collection requisite to this project, the tests cannot be reproduced in this report.

JUNIOR COLLEGE STUDENT INVENTORY

Instructions for Section B

Section B is not a timed test but you should plan to finish this section in approximately 35 minutes including both parts 1 and 2. Section B gives you an opportunity to express your opinion and describe some aspects of yourself, your fellow students, and the college. Read carefully the instructions preceding each different group of questions in Section B. You will not be given any further instructions until you have completed Section B.

INSTRUCTIONS: Items 1-45

People often tend to sterotype or typify others. For example, people often speak of the "typical" college student, the "typical" art major or the "typical" electronics student. In other words, people tend to attribute certain characteristics to a certain group. For example, most people would think of the "typical" speech-theater arts student as extroverted, outgoing, and uninhibited.

You are asked to think of the "typical" student at your college in the following five programs:

A Accounting
B Electronics
C Automotive Technology
D Secretarial
E Pre-medical

and compare these "typical" students with yourself in the following items:

Who is likely to be making the most money after completing their education and obtaining employment?

1. You (mark A) or the typical Accounting student (mark B).
2. You (mark A) or the typical Electronics student (mark B).
3. You (mark A) or the typical Automotive Tech. student (mark B).
4. You (mark A) or the typical Secretarial student (mark B).
5. You (mark A) or the typical Pre-medical student (mark B).

Who is better educated in English, Literature, Composition, communications, etc.?

6. You (mark A) or the typical Accounting student (mark B).
7. You (mark A) or the typical Electronics student (mark B).
8. You (mark A) or the typical Automotive Tech. student (mark B).
9. You (mark A) or the typical Secretarial student (mark B).
10. You (mark A) or the typical Pre-medical student (mark B).

Who is better educated in the humanities and fine arts?

11. You (mark A) or the typical Accounting student (mark B).
12. You (mark A) or the typical Electronics student (mark B).
13. You (mark A) or the typical Automotive Tech. student (mark B).
14. You (mark A) or the typical Secretarial student (mark B).
15. You (mark A) or the typical Pre-medical student (mark B).

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Who is better educated in the social sciences?

16. You (mark A) or the typical Accounting student (mark B).

17. You (mark A) or the typical Electronics student (mark B).

18. You (mark A) or the typical Automotive Tech. student (mark B).

19. You (mark A) or the typical Secretarial student (mark B).

20. You (mark A) or the typical Pre-medical student (mark B).

Who is better educated in the sciences (biological and physical) and mathematics?

21. You (mark A) or the typical Accounting student (mark B).

22. You (mark A) or the typical Electronics student (mark B).

23. You (mark A) or the typical Automotive Tech. student (mark B).

24. You (mark A) or the typical Secretarial student (mark B).

25. You (mark A) or the typical Pre-medical student (mark B).

Who is more interested in intellectual activities?

26. You (mark A) or the typical Accounting student (mark B).

27. You (mark A) or the typical Electronics student (mark B).

28. You (mark A) or the typical Automotive Tech. student (mark B).

29. You (mark A) or the typical Secretarial student (mark B).

30. You (mark A) or the typical Pre-medical student (mark B).

Who is more interested in cultural activities?

31. You (mark A) or the typical Accounting student (mark B).

32. You (mark A) or the typical Electronics student (mark B).

33. You (mark A) or the typical Automotive Tech. student (mark B).

34. You (mark A) or the typical Secretarial student (mark B).

35. You (mark A) or the typical Pre-medical student (mark B).

Who is more interested in social activities?

36. You (mark A) or the typical Accounting student (mark B).

37. You (mark A) or the typical Electronics student (mark B).

38. You (mark A) or the typical Automotive Tech. student (mark B).

39. You (mark A) or the typical Secretarial student (mark B).

40. You (mark A) or the typical Pre-medical student (mark B).

Who has more prestige?

Specific fields of study as well as major areas in a college have different amounts of prestige (general social standing, status, regard by others, etc.), therefore the individuals in the different specific programs also have differing amounts of prestige.

41. You (mark A) or the typical Accounting student (mark B).

42. You (mark A) or the typical Electronics student (mark B).

43. You (mark A) or the typical Automotive Tech. student (mark B).

44. You (mark A) or the typical Secretarial student (mark B).

45. You (mark A) or the typical Pre-medical student (mark B).

INSTRUCTIONS:

Following is a list of specific programs of study. For convenience, this list is arranged into general major areas containing related fields of study. For example, in the general area of industrial technology, the specific programs of study are aircraft engine technology, automotive technology, graphic arts, etc. Each is identified by a two-digit code number.

Use this list to specify your answers to questions 46-58 in this section which begins on page 36. In each case, you will indicate your answer by recording on the answer sheet the appropriate two-digit code number which identifies the specific program of study which best answers the question. On the answer sheet, each item has a box consisting of two columns of numbers. Indicate the first of the two digits (numbers) identifying a program by marking the appropriate space in the first or left-hand column. Indicate the second of the two digits identifying a program by marking the appropriate space in the second or right-hand column.

Example:

X-Ray Technology: 75		Data Processing: 24		Photography: 43	
0	0	0	0	0	0
1	1	1	1	1	1
2	2	.	2	2	2
3	3	3	3	3	.
4	4	4	.	.	4
5	.	5	5	5	5
6	6	6	6	6	6
.	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

00 - GENERAL AREA OF AGRICULTURE TECHNOLOGY

01 - Agricultural Business (management)
02 - Agriculture Engineering (chemicals, mechanics, technology, production)
03 - Agriculture General
04 - Agriculture Science
05 - Animal Related Agriculture (dairy, husbandry, animal science)
06 - Plant Related Agriculture (forestry, plant science, horticulture)

10 - GENERAL AREA OF BUILDING AND CONSTRUCTION TECHNOLOGY

11 - Air Conditioning and Refrigeration
12 - Cabinet Making (wood working)
13 - Construction Technology
14 - Electrical Technology

20 - GENERAL AREA OF BUSINESS TECHNOLOGY

21 - Accounting Practices (accounting, banking, bookkeeping)
22 - Business Administration (mid-management, office management)
23 - Clerical (clerk-typist, stenographic)
24 - Data Processing
25 - General Business
26 - Merchandising (retailing, sales)
27 - Real Estate
28 - Secretarial (general)
29 - Secretarial (executive, legal, linquistic, medical, technical)

30 - GENERAL AREA OF SPECIALIZED TECHNOLOGY

31 - Chemical Technology
32 - Civil Technology (drafting technology)
33 - Electronic Technology
34 - Electric Technology
35 - General Technology
36 - Instrumentation
37 - Mechanical Engineering Technology
38 - Surveying

40 - GENERAL AREA OF COMMERCIAL TECHNOLOGY

41 - Art, Commercial
42 - Journalism
43 - Photography
44 - Restaurant and/or Hotel Management
45 - Transportation

50 - GENERAL AREA OF SERVICE TECHNOLOGY

51 - Airline Hostess
52 - Cosmetology
53 - Food Service Administration
54 - Food Marketing
55 - Home Economics

60 - GENERAL AREA OF GOVERNMENTAL SCIENCE

61 - Fire Science
62 - Police Science (law enforcement, corrective administration)
63 - Recreation

70 - GENERAL AREA OF HEALTH SERVICES

71 - Dental Assisting
72 - Medical Technology
73 - Nursing LPN
74 - Nursing RN
75 - X-Ray Technology

80 - GENERAL AREA OF INDUSTRIAL TECHNOLOGY

81 - Aircraft Engine Technology
82 - Automotive Technology
83 - Graphic Arts
84 - Machine Shop and Tool and Die Making
85 - Welding

90 - GENERAL AREA OF ARTS AND SCIENCE

91 - Humanities and Fine Arts
92 - Biological Sciences
93 - Physical Sciences
94 - Pre-Professional
95 - Social Sciences

INSTRUCTIONS: Items 46-52

Refer back to the preceding list to answer the following items. Indicate a specific program if at all possible. Use the number for a General Area if nothing similar to your specific program is listed.

46. What is your specific program of study?

47. In what specific program are most of your college friends?

48. If friends have ever suggested or advised you to change to another program, what specific program was most commonly suggested? (If they haven't, mark 00 on the answer sheet.)

49. If faculty members or counselors have ever suggested or advised you to change to other programs, which specific program was most commonly suggested? (If they haven't, mark 00 on the answer sheet.)

50. If your parents have ever suggested or advised you to change to other programs, which specific program was most commonly suggested? (If they haven't, mark 00 on the answer sheet.)

51. What was your intended specific program of study about a year ago? (Mark 00 if you didn't have one.)

52. What specific program would you find most interesting and therefore would like to be in if you didn't have to consider grades, prerequisites, availability of employment, or income?

INSTRUCTIONS: Items 53-58

Who do you think considers your program (your answer to question 46) as having more prestige:

53. A - myself
    B - the entire student body in general

54. A - the entire college faculty in general
    B - the entire student body in general

55. A - the entire college faculty
    B - myself

56. A - the people in the community
    B - myself

57. A - the people in the community
    B - the entire faculty in general

58. A - the entire student body in general
    B - the people in the community

INSTRUCTIONS: Items 59-66

Indicate in your opinion the likelihood of your success in each of the following programs (regardless of your present interest in them) by using the following code:

A - not very likely
B - less than average
C - about average
D - better than average
E - almost certain

59. Your own program

60. The area you find most interesting and in which you would most like to be (your answer to question 52).

61. Engineering

62. Merchandising

63. Electronics

64. Laboratory Technology

65. Food Services

66. Art, Drama, or Music

INSTRUCTIONS: Items 67-69

Statements 67-69 refer to extra-curricular activities. Indicate how much you attend or participate in each of these activities using the following code:

A - very much
B - quite a bit
C - moderate amount
D - a little
E - none

67. Subject matter, career, or class related activities such as foreign language clubs, publications (college paper, yearbook, etc.), math clubs, debating teams, pre-med clubs, etc.

68. Social groups (fraternities, service clubs, etc.)

69. Musical or dramatic events (school concerts, plays, etc.)

INSTRUCTIONS: Items 70-76

Statements 70-76 represent a number of goals of education. Indicate on your answer sheet the amount of progress you feel you are making toward achieving each one. Mark:

A - very much
B - quite a bit
C - moderate amount
D - very little
E - none

70. Developing abilities to communicate and work effectively with groups and individuals.

71. Developing the ability to write, speak, and communicate clearly, correctly, and effectively.

72. Vocational training - skills and techniques directly applicable to a job.

73. Developing an ability to think critically.

74. Developing an understanding and appreciation of the concepts, attitudes and methodology of science.

75. Ability to define and solve problems in a rational and systematic manner.

76. Knowledge of and facility in applying principles of modern technology.

INSTRUCTIONS: Items 77-84

Each of these questions is followed by a number of possible answers. Read all of them before marking the answer sheet.

77. Indicate how many of your friends are in your specific program and general area.

A - All (with few exceptions) are in my specific program.
B - Most are in my general area but not necessarily in my specific program.
C - About as many are in my general area as in other areas.
D - Most are in other areas.
E - All (with few exceptions) are in other areas.

78. How many credit hours are you currently taking?

A - 6 or fewer hours
B - 7-9 hours
C - 10-12 hours
D - 13-16 hours
E - 17 or more credit hours

79. How much do you like your college?

A - like it extremely well
B - like it more than dislike it
C - neither like nor dislike it
D - dislike it more than like it
E - dislike it extremely

80. To what extent have you found groups in the college who were really congenial and with whom you felt happy?

A - very much
B - quite a bit
C - somewhat
D - not very much
E - not at all

81. Assuming you were to try to complete a bachelors degree, how likely are you to succeed in comparison to others in your class?

A - more likely than 80% of the students
B - more likely than 60% of the students
C - more likely than 40% of the students
D - more likely than 20% of the students
E - not very likely

82. How much do you participate in voluntary class activities, discussion, ask and/or answer questions, etc.?

A - more than 80% of the students
B - more than 60% of the students
C - more than 40% of the students
D - more than 20% of the students
E - hardly any

83. Are your close friends:

A - mostly other students in college
B - about evenly divided between those in college and those out of college
C - mostly persons outside of the college

84. How much of the time do you feel satisfied with your college?

A - nearly all of the time
B - much of the time
C - about half of the time or less

INSTRUCTIONS: Items 85-92

Use the following code to indicate your responses to items 85 through 92.

A - yes, frequently
B - sometimes
C - no

85. Have your parents every suggested or advised you to go to a four-year college instead of a junior college?

86. Have your parents every suggested or advised you to drop out of school?

87. Have any of your friends ever suggested or advised you to go to a four-year college instead of a junior college?

88. Have any of your friends suggested or advised you to drop out of school?

89. Have any of the faculty or counselors ever suggested or advised you to go to a four-year college instead of a junior college?

90. Have any of the faculty or counselors ever suggested or advised you to drop out of school?

91. Have your parents ever suggested or advised you to change programs?

92. Have you ever considered dropping out of school?

INSTRUCTIONS: Items 93-95

Again, each of these questions is followed by a number of possible answers. Read all of them before marking the answer sheet.

93. Indicate the highest annual income, in present dollars, you expect to receive in your lifetime.

A - $2,999 or less
B - $3,000. to $4,999.
C - $5,000. to $7,999.
D - $8,000. to $9,999.
E - $10,000. to $12,499.
F - $12,500. to $14,999.
G - $15,000. to $19,999.
H - $20,000. to $24,999.
I - $25,000. to $49,999.
J - $50,000. or more.

94. Indicate the category which comes closest to your father's or guardian's occupation.

A - professional (doctor, lawyer, teacher, scientist, engineer, etc.)
B - semi-professional and technical (airline pilot, draftsman, nurse, dental technician, electronics technician, etc.)
C - executive, managerial, or administrative position in business, government, or industry (buyer, inspector, store department head, bank executive, etc.)
D - self-employed proprietary or managerial position in business or industry.
E - clerical position (bookkeeper, cashier, secretary, telephone operator, etc.)
F - salesman
G - craftsman (cabinetmaker, typesetter, printer, toolmaker, plumber, electrician, mechanic, etc.)
H - farm owner or manager
I - foremen in construction, manufacturing, etc.
J - creative artist (musician, actor, sculptor, writer, dancer, etc.)

95. Indicate the amount of education attained by your parent or guardian.

A - sixth grade or less
B - seventh, eighth or ninth grade
C - some high school but not a high school graduate
D - high school graduate
E - some college but less than two years
F - two years of college
G - three or four years of college but not a degree
H - a four-year college degree
I - more than a four year degree

Part 2

INSTRUCTIONS:

All students do not like and dislike the same things about a junior college. What one person prefers another may dislike strongly. These preferences can affect the atmosphere of a college a great deal. Therefore, an adequate description of a junior college should include information about the preferences held by students at that college.

The statements in this section describe policies, practices, facilities, activities and conditions in a hypothetical junior college. You need not have any particular college in mind; you are not being asked here about your own college. On the answer sheet provided, you are to indicate the extent to which you would prefer or not prefer to be in such an institution.

For each item, blacken the appropriate space on the answer sheet, using the following code:

A. I would definitely prefer and would enjoy immensely a junior college characterized by this statement.

B. I would prefer and would be comfortable in a junior college characterized by this statement, but it is not essential for me.

C. This statement does not affect me al all. If true of a junior college, it would make me neither comfortable nor uncomfortable and would neither be preferred nor unpreferred.

D. I would not prefer and would be somewhat uncomfortable in a junior college characterized by this statement, but it could be tolerated.

E. I would definitely not prefer and would be extremely uncomfortable in a junior college characterized by this statement.

Answer each item. Do not take too long on any one item. Let your first impression guide you.

1. There are courses which involve students in activities with groups or agencies in the local community.

2. In most classes students quickly learn everyone's name.

3. Students can take a semester or year abroad as part of their regular program.

4. Research is considered important by a lot of people on this campus.

5. Course offerings and faculty in the natural sciences are outstanding.

6. A lot of student discussion is generated by courses in government, politics, and international relations.

7. Many instructors encourage students to write themes or reports which analyze personal experience.

8. New fads and phrases are continually springing up among the students.

9. Many faculty members have worked overseas or frequently traveled to other countries.

10. Most student rooms are pretty messy.

11. Many of the social science professors are actively engaged in research.

12. There is very little studying here over the week-ends.

13. Students are sometimes noisy and inattentive at concerts and lectures.

14. It's important socially here to be in the right club or group.

15. There are lots of dances, parties, and social activities.

16. Many students are interested in and give support to such causes as Red Cross, Campus Chest, CARE, or Blood Banks.

17. Most courses are a real intellectual challenge.

18. Students often start projects without trying to decide in advance how they will develop or where they will end.

19. There are frequent informal social gatherings.

20. Many of the natural science professors are actively engaged in research.

21. Groups of students from the college often get together for parties or visits during holidays.

22. A lecture by an outstanding scientist would be poorly attended.

23. Students are very serious and purposeful about their work.

24. The person who is always trying to "help out" is likely to be regarded as a nuisance.

25. Many students seem to expect other people to adapt to them rather than trying to adapt themselves to others.

26. Few students bother with rubbers, hats, or other special protection against the weather.

27. In many classes there is a course outline or study guide for the students.

28. Students spend a lot of time worrying about what kind of jobs they can get.

29. To most students here art is something to be studied rather than felt.

30. Students frequently do things on the spur of the moment.

31. Most students here are really bright.

32. Programs of study about a particular area or region are offered such as Latin American studies, Russian studies, etc.

33. There is a lot of group spirit.

34. There is considerable interest in the analysis of value systems and the relativity of societies and ethics.

35. Tutorial or honors programs are available for qualified students.

36. A lecture by an outstanding literary critic would be poorly attended.

37. Class discussions are typically vigorous and intense.

38. Many instructors assign projects which call for group work.

39. Election to a science honorary society is a real mark of distinction.

40. Many students drive sports cars.

41. Prizes are given for creative work in writing, music, painting, and other arts.

42. Most students are interested in business, engineering, management, and other practical careers.

43. Spontaneous student rallies and demonstrations occur frequently.

44. The student health center or counseling bureau includes psychiatric services.

45. Few students are planning post-graduate work in the social sciences.

46. Student elections generate a lot of intense campaigning and strong feeling.

47. This institution has an excellent reputation for academic freedom.

48. There is a recognized group of student leaders on this campus.

49. Many students are interested in joining the Peace Corps or are planning, somehow, to spend time in another part of the world.

50. Groups of students sometimes spend all evening listening to classical records.

51. Most of the instructors are very thorough teachers and really probe into the fundamentals of their subjects.

52. Student groups often meet in faculty members' homes.

53. The library has paintings and/or phonograph records which circulate widely among the students.

54. The instructors go out of their way to help you.

55. The college regards training people for service to the community as one of its major responsibilities.

56. Typically the library is open until 10:30 p.m. or later.

57. The student newspaper rarely carries articles intended to stimulate discussion of philosophical or ethical matters.

58. There are courses or voluntary seminars that deal with problems of social adjustment.

59. Most students respond to ideas and events in a pretty cool and detached way.

60. Few students here would ever work or play to the point of exhaustion.

61. Course offerings and faculty in the social sciences are outstanding.

62. What is regarded as right and wrong is quite clear on this campus.

63. Well established ways of doing things are important here.

JUNIOR COLLEGE STUDENT INVENTORY

Appendix B

SECTION A

DO NOT MARK HERE

PRINT YOUR NAME IN THE BOXES PROVIDED. THEN BLACKEN THE LETTE BEL CH M EACH ER OF NAME

YOUR LAST NAME | YOUR FIRST NAME | MI

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

MARITAL STATUS
SINGLE
MARRIED
WIDOWED
DIVORCED
SEPARATED

SEX
M F

BIRTH DATE

MO.	DAY		YEAR
JAN	0	0	0
FEB	1	1	1
MAR	2	2	2
APR	3	3	3
MAY		4	4
JUN		5	5
JUL		6	6
AUG		7	7
SEP		8	8
OCT		9	9
NOV			
DEC			

HIGH SCHOOL GRADUATE
YES
NO

UNIVERSITY OF MINNESOTA

OPTICAL SCANNING CORPORATION,

DC 1864

SECTION A PART 1

PRACTICE 1 A B ● D E 2 A B C D ● 3 A B C D E 4 A B C D E

1 A B C D E 2 A B C D E 3 A B C D E 4 A B C D E 5 A B C D E
6 A B C D E 7 A B C D E 8 A B C D E 9 A B C D E 10 A B C D E
11 A B C D E 12 A B C D E 13 A B C D E 14 A B C D E 15 A B C D E
16 A B C D E 17 A B C D E 18 A B C D E 19 A B C D E 20 A B C D E
21 A B C D E 22 A B C D E 23 A B C D E 24 A B C D E 25 A B C D E

SECTION A PART 2

PRACTICE 1 A B C ● 2 A B ● D 3 A B C D 4 A B C D 5 A B C D

1 A B C D 2 A B C D 3 A B C D 4 A B C D 5 A B C D 6 A B C D 7 A B C D 8 A B C D
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17 A B C D 18 A B C D 19 A B C D 20 A B C D 21 A B C D 22 A B C D 23 A B C D 24 A B C D
25 A B C D 26 A B C D 27 A B C D 28 A B C D 29 A B C D 30 A B C D 31 A B C D 32 A B C D
33 A B C D 34 A B C D 35 A B C D 36 A B C D 37 A B C D 38 A B C D 39 A B C D 40 A B C D

SECTION A PART 3

PRACTICE 1 A ● C D 2 A B C D 3 A B C D

1 A B C D 2 A B C D 3 A B C D 4 A B C D 5 A B C D 6 A B C D 7 A B C D
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15 A B C D 16 A B C D 17 A B C D 18 A B C D 19 A B C D 20 A B C D 21 A B C D
22 A B C D 23 A B C D 24 A B C D 25 A B C D 26 A B C D 27 A B C D 28 A B C D
29 A B C D 30 A B C D 31 A B C D 32 A B C D 33 A B C D 34 A B C D 35 A B C D
36 A B C D 37 A B C D 38 A B C D 39 A B C D 40 A B C D 41 A B C D 42 A B C D
43 A B C D 44 A B C D 45 A B C D 46 A B C D 47 A B C D 48 A B C D 49 A B C D

JUNIOR COLLEGE STUDENT INVENTORY **BEST COPY AVAILABLE** SECTION B

DO NOT MARK HERE

SECTION B PART 1

1 A B 2 A B 3 A B 4 A B 5 A B 6 A B 7 A B 8 A B 9 A B
10 A B 11 A B 12 A B 13 A B 14 A B 15 A B 16 A B 17 A B 18 A B
19 A B 20 A B 21 A B 22 A B 23 A B 24 A B 25 A B 26 A B 27 A B
28 A B 29 A B 30 A B 31 A B 32 A B 33 A B 34 A B 35 A B 36 A B 37 A B 38 A B 39 A B
40 A B 41 A B 42 A B 43 A B 44 A B 45 A B
53 A B 54 A B 55 A B 56 A B 57 A B 58 A B
59 A B C D E 60 A B C D E 61 A B C D E 62 A B C D E
63 A B C D E 64 A B C D E 65 A B C D E 66 A B C D E
67 A B C D E 68 A B C D E 69 A B C D E 70 A B C D E
71 A B C D E 72 A B C D E 73 A B C D E 74 A B C D E
75 A B C D E 76 A B C D E 77 A B C D E 78 A B C D E 79 A B C D E 80 A B C D E 81 A B C D E
82 A B C D E 83 A B C 84 A B C 85 A B C 86 A B C 87 A B C 88 A B C 89 A B C 90 A B C
91 A B C 92 A B C 93 A B C D E F G H I J 94 A B C D E F G H I J 95 A B C D E F G H I

46	47	48	49	50	51	52
0 0	0 0	0 0	0 0	0 0	0 0	0 0
1 1	1 1	1 1	1 1	1 1	1 1	1 1
2 2	2 2	2 2	2 2	2 2	2 2	2 2
3 3	3 3	3 3	3 3	3 3	3 3	3 3
4 4	4 4	4 4	4 4	4 4	4 4	4 4
5 5	5 5	5 5	5 5	5 5	5 5	5 5
6 6	6 6	6 6	6 6	6 6	6 6	6 6
7 7	7 7	7 7	7 7	7 7	7 7	7 7
8 8	8 8	8 8	8 8	8 8	8 8	8 8
9 9	9 9	9 9	9 9	9 9	9 9	9 9

ECTION B PART 2

1 A B C D E 2 A B C D E 3 A B C D E 4 A B C D E 5 A B C D E 6 A B C D E 7 A B C D E
8 A B C D E 9 A B C D E 10 A B C D E 11 A B C D E 12 A B C D E 13 A B C D E 14 A B C D E
15 A B C D E 16 A B C D E 17 A B C D E 18 A B C D E 19 A B C D E 20 A B C D E 21 A B C D E
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36 A B C D E 37 A B C D E 38 A B C D E 39 A B C D E 40 A B C D E 41 A B C D E 42 A B C D E
43 A B C D E 44 A B C D E 45 A B C D E 46 A B C D E 47 A B C D E 48 A B C D E 49 A B C D E
50 A B C D E 51 A B C D E 52 A B C D E 53 A B C D E 54 A B C D E 55 A B C D E 56 A B C D E
57 A B C D E 58 A B C D E 59 A B C D E 60 A B C D E 61 A B C D E 62 A B C D E 63 A B C D E

WORK VALUES /ENTORY

1 5 4 3 2 1 2 5 4 3 2 1 3 5 4 3 2 1 4 5 4 3 2 1 5 5 4 3 2 1
6 5 4 3 2 1 7 5 4 3 2 1 8 5 4 3 2 1 9 5 4 3 2 1 10 5 4 3 2 1
11 5 4 3 2 1 12 5 4 3 2 1 13 5 4 3 2 1 14 5 4 3 2 1 15 5 4 3 2 1
16 5 4 3 2 1 17 5 4 3 2 1 18 5 4 3 2 1 19 5 4 3 2 1 20 5 4 3 2 1
21 5 4 3 2 1 22 5 4 3 2 1 23 5 4 3 2 1 24 5 4 3 2 1 25 5 4 3 2 1
26 5 4 3 2 1 27 5 4 3 2 1 28 5 4 3 2 1 29 5 4 3 2 1 30 5 4 3 2 1
31 5 4 3 2 1 32 5 4 3 2 1 33 5 4 3 2 1 34 5 4 3 2 1 35 5 4 3 2 1
36 5 4 3 2 1 37 5 4 3 2 1 38 5 4 3 2 1 39 5 4 3 2 1 40 5 4 3 2 1
41 5 4 3 2 1 42 5 4 3 2 1 43 5 4 3 333 44 5 4 3 2 1 45 5 4 3 2 1

OPTICAL SCANNING CORPORATION
865

PAGE(S) 320-322 ~~WAS~~ (WERE) ~~MISSING~~ (REMOVED) FROM
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THE ERIC DOCUMENT REPRODUCTION SERVICE.

APPENDIX D

Fascimile of Booklet of Follow-Up Study Instructions
(Macomb County Community College)

Background

This follow-up is being conducted at the close of each semester or quarter at twenty-four public junior colleges in seventeen states. It is part of a national study funded by the U. S. Office of Education and conducted jointly by the University of Minnesota and the twenty-four participating colleges. The Project Director is Dr. Henry Borow of the University of Minnesota. The colleges operating on a quarter plan basis will complete the study six times during the two year period while semester plan colleges will complete it at the close of each of the four semesters. The participating colleges were selected from the sample of 100 colleges involved in Cooperative Research Project 2849, directed by Dr. Vernon L. Hendrix. The students included in the study completed the Junior College Student Inventory and the Work Values Inventory during the fall of 1966.

The JCSI and WVI were used to determine student characteristics (personality, abilities, and life record) which interact with environmental, sociological, attitudinal, and community influence dimensions operating in a college. The major purpose of the project is to determine factors influencing the success of technical/vocational programs in public junior colleges. Success will be determined largely on the basis of the changing status of the students as indicated by the series of follow-up studies. Such questions as have they completed their program, did they obtain relevant employment and did they drop out, will be answered. Statistical anlysis of the results should permit better planning, organization and operation of technical/vocational programs in public junior colleges.

Significant institutional research for each of the participating colleges will also result. Determination of what happens to entering freshmen during the subsequent two-year period should be very helpful in planning and evaluation of the total college program

The person responsible for conduct of the study on each campus was designated by the president or dean of that college. Each participating college will receive reimbursement from the University of Minnesota at the rate of 15¢ per student per follow-up. For example, a college on a quarter plan with 600 students involved in the study would receive $90.00 six times totaling $540.00 for the total study. Payment will be made following the completion of each follow-up.

General Instructions

An IBM card for each student will be sent to the college. The students will be identified on the cards. The information requested includes grade point average (GPA), number of hours or units completed, and status (specifically and within the category of either student or non-student). Please read the remaining instructions carefully.

Identification of Students

On each card the student's name, sex and birth date will appear. Please note any correction in the name on the left side of the card below where the name appears. Because the sex and birth date are given only to help the college identify the student, minor errors need not be noted. The unknown box should be marked only when the name is unidentifiable (you have no record indicating the name shown or a very similar name).

GPA

Please record the student's grade point average from the Fall, 1967 Semester using the following scale:

4-Point Grade Scale

1 = 0.00 - 1.49
2 = 1.50 - 1.99
3 = 2.00 - 2.49
4 = 2.50 - 2.99
5 = 3.00 - 4.00

F = 0.0
D = 1.0
C = 2.0
B = 3.0
A = 4.0

Units Completed

Please indicate the number of semester hours attempted by this student during the most recent semester (Fall, 1967). This would include units (semester hours) for all courses in which the student enrolled and completed with a final grade (including F grades). Thus, units in courses officially dropped without grade would not be included. The hours should not include any credits earned during any previous semester.

Status

Individuals should be marked either under student status or non-student status. In no case will it be necessary to mark both the student and non-student columns. The student column should be marked only if the student is presently (Spring Semester) enrolled at your institution, and the exact program should be indicated by using the codes which appear on succeeding pages. If the individual has left your institution (including transfers), a category should be marked in the non-student column on the card, using the non-student status codes. Please be sure to mark each individual's status.

Please keep in mind that status (both student and non-student) refers to the present time and not necessarily his or her status during the semester just ended. You are encouraged to consult counselors and faculty members to determine as accurately as possible the current status of a particular student. Some colleges with varying degrees of success have used a double post card form requesting information from students who have left the institution.

Marking the Cards

Special IBM Electrographic pencils are included for marking the cards. Do not use any other type of writing utensil to mark the boxes. Failure to use the special pencils will necessitate doing the process over again on new cards.

Return of the Cards

Please return the cards within three or four weeks of their arrival to Kenneth W. Oosting, 211 Burton Hall, University of Minnesota, Minneapolis, Minnesota, 55455. If, for some reason, there will be a delay in returning the cards, please advise as to the extent of the delay and whether any assistance might be given.

Special Problems

If problems should arise that will interfere with the normal conduct of the study, please contact the Project Junior College office in Minneapolis. If the matter is urgent or if delay has already been experienced, please call collect to 612/373-5580. Your cooperation is appreciated.

STATUS: STUDENT

Business

01	Accounting
02	General Business
03	Data Processing
04	Marketing

General

05	Educational and Cultural Development
06	Development

Hostess (Stewardess)

07	Airline Stewardess

Medical

08	Medical Assistant - Receptionist
09	Medical Secretary
10	Nursing (Two-Year)

Secretarial

11	Secretarial: General
12	Secretarial: Executive
13	Secretarial: Legal
14	Clerical
15	General Receptionist
16	Stenographic
17	Data Processing - Clerical
18	Office Occupations

General Technology

19 General Technology
20 Technical Apprentice

Technologies

21 Body Drafting (Auto)
22 Mechanical Drafting
23 Tool Fixture & Die Design
24 Special Machine Design
25 Metal Processing
26 Technical Illustration
27 Electrical Technology
28 Fluid Power
29 Meteorology
30 Numerical Control
31 Civil Technology
32 Climate Control
33 Welding
34 Data Processing

35 General Area of Arts and Science (4-Year Transfer Programs)

36 Liberal Arts: Non-Science (including art, music, humanities, English, speech, history, social science and psychology).
37 Liberal Arts: Science (including physical science, biological science, and math).
38 Pre-professional (including engineering, architecture, education, pre-law and pre-medical).
39 Business Administration (including accounting).

40 Program not listed above. Please write the name of the program or curriculum on the left side of the card and mark 40 under student status.

STATUS: NON-STUDENT

Automotive

01 Auto-body Detailer
02 Auto-body Design Checker
03 Auto-body Layout Draftsman
04 Auto-body Chassis Technician
05 Auto-body Styling Technician

Drafting - Mechanical

06 Tool & Die Design
07 Mechanical Draftsman (Detailer)
08 Engineering Aide
09 Body Cage Designer
10 Product Designer

Tool Fixture & Die Design

11 Tool, Fixture and Die Designer
12 Product Draftsman

Machine Designer

13 Automated Machine Designer
14 Tool and Die Maker
15 Machine Design Management Position
16 Materials Processing Machine Designer

Metal Processing

17 Metals Processing Technician
18 Metal Fabricator or Finisher
19 Engineering Aide
20 Machine Tool Technician
21 Processman, Cost Analyst
22 Inspector

Technical Illustration

23 Technical Illustrator
24 Commercial Artist
25 Minor Layout
26 Key Liner

Meteorology

27 Inspectors
28 Quality Control

Data Processing

29 Programmers
30 Operator of data processing equipment (e.g., key-punch operator)
31 Maintenance of data processing equipment
32 Management of data processing

Civil Technology

33 Building and heavy construction
34 Technician - Inspector
35 Surveying - Drafting
36 Materials testing and sales
37 Other civil technology position. Please mark 37 and write the name of the position on the left side of the card under the student's name.

Climate Control

38 Heating and/or air conditioning inspector
39 Heating and/or air conditioning installation/designer

Welding

40 Welding Technician

Electrical Technology

41 Electrician
42 Electrician's Aide
43 Electronic Lab. Technician
44 Elec. Equipment Testing and Repairman
45 Electronics Expediter
46 Elec. Design Technician

Fluid Power

47 Fluid Power Technician (including hydraulics, pneumatics, fluidics, and servo-mechanism)
48 Maintenance position in fluid power industry
49 Automation Technician

Accounting

50 Accounting (general, including various specialities, e.g., Tax Accountant)
51 Junior Accountant
52 Accounting Clerk
53 Bookkeeper

Hostess

54 Transportation (air, train, or bus)
55 Secretary
56 Hostess

Data Processing

57 Programmer

Clerical

58 General Office Clerk
59 Bookkeeper
60 Clerk-Typist

Receptionist

61 Receptionist (including guide)

Secretarial - Clerical

63 Medical or Dental Secretary
64 Executive Secretary
65 Secretary and/or Receptionist
66 Clerk-Typist (general clerical)
67 Key-punch operator
68 Legal Secretary or Administrative Assistant in law office

Stenographer

69 Stenographer
70 Clerk, General office
71 Legal, Medical or Technical Stenographer

Business - Clerical

72 Business Management
73 Advertising & Promotion
74 Salesperson
75 Office Clerk
76 Records/Accounting Clerk
77 Self-Employed in business

Business - Marketing

78 Retail Department Manager
79 Sales - wholesale/retail (Sales Representative)
80 Advertising/Management
81 Stock Broker (or closely related position, such as Market-Research Analyst)

Medical

82 Medical Secretary
83 Assistant to Physician or Dentist
84 Medical Laboratory Technician
85 Receptionist (doctor's office or hospital)

Nursing

86 Nursing - R.N.
87 Nursing - Practical

Employment: Not related to student's program

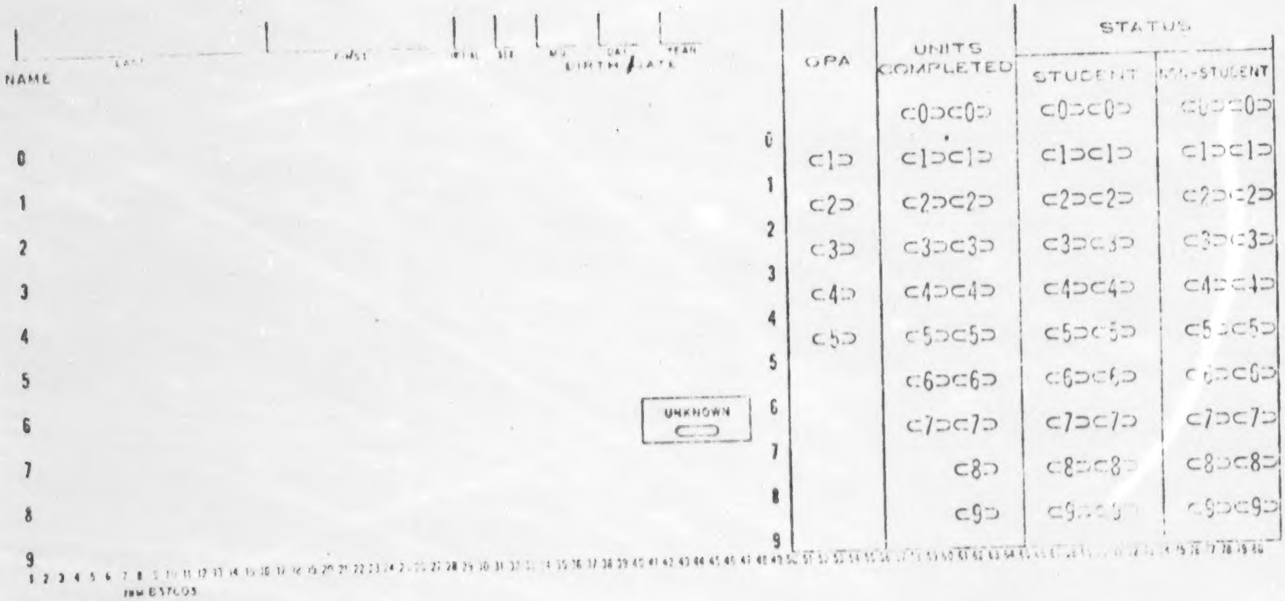
88 Service station attendant
89 Store clerk/stock clerk
90 Waitress
91 Other employment (employment for which his program at the college did not prepare him).
92 Actual position unknown, but is assumed to be one unrelated to his curriculum (program) while in college

Miscellaneous

93 Armed Services
94 Transferred to another two-year or four-year college
95 Transferred to a technical-vocational, business, beauty or barber school
96 Unemployed
97 Housewife
98 Totally disabled or deceased
99 Other. Please mark 99 and explain on the left side of the card under the student's name.

Participating Colleges

California:	1.	Barstow College
	2.	Porterville College
Colorado:	3.	Northeastern Junior College
Florida:	4.	Indian River Junior College
Illinois:	5.	Danville Junior College
	6.	Highland Community College
	7.	Mount Vernon Community College
	8.	Thornton Junior College
Indiana:	9.	Vincennes University
Iowa:	10.	Iowa Central Community College
	11.	Marshalltown Community College
Massachusetts:	12.	Greenfield Community College
Michigan:	13.	Delta College
	14.	Macomb County Community College
Minnesota:	15.	Mesabi State Junior College
Mississippi:	16.	Meridian Junior College
Missouri:	17.	Metropolitan Junior College - Kansas City
New York:	18.	Agricultural Technical Institute - Canton
	19.	Orange County Community College
Oklahoma:	20.	Northern Oklahoma College
Oregon:	21.	Clatsop Community College
Texas:	22.	Temple Junior College
Virginia:	23.	Virginia Western Community College
Washington:	24.	Centralia College


NAME
LAST
FIRST
INITIAL
SEX
MO
DAY
YEAR
BIRTH DATE
UNKNOWN
GPA
UNITS COMPLETED
STATUS
STUDENT
NON-STUDENT
IBM B37C05

Appendix E

Facsimile of IBM Mark-Sense Card for use
in recording follow-up data (see Appendix D)

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APPENDIX F

Percentages of Returns on Final Followup (by College)

	ORIGINAL SAMPLE	PERCENTAGE COMPLETED AS OF THE LAST FOLLOWUP
Orange County	378	311 (82.2)
Virginia Western	380	357 (93.9)
Marshalltown	457	455 (99.6)
Greenfield	244	233 (95.5)
Clatsop	185	168 (90.8)
Northern Oklahoma	392	379 (96.9)
Porterville	271	269 (99.3)
Temple	341	328 (96.3)
Indian River	320	288 (90.0)
Danville	462	411 (89.0)
Rend Lake	329	324 (98.5)
Thornton	686	564 (82.2)
Mesabi	257	254 (99.0)
Highland	192	165 (85.9)
Northeastern	607	604 (99.5)
Iowa Central	438	403 (92.0)
Vincennes	910	764 (84.0)
Barstow	110	109 (99.1)
Canton	562	486 (86.5)
Macomb	1198	920 (76.8)
Delta	933	726 (77.8)
Meridian	297	289 (97.4)
Metropolitan	755	726 (97.6)
Centralia	260	213 (82.1)

UNIVERSITY OF CALIF.
LOS ANGELES

JUN 20 1975

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION